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SURFACE TRANSPORTATION BOARD

DECISION

STB Docket No. 42088

**WESTERN FUELS ASSOCIATION, INC., AND
BASIN ELECTRIC POWER COOPERATIVE**

v.

BNSF RAILWAY COMPANY

Decided: September 7, 2007.

The Board finds that the defendant railroad has market dominance over the transportation at issue, but that the complainant has failed to establish that the challenged rates are unreasonably high. Complainants are offered an opportunity to submit supplemental evidence under the stand-alone cost constraint.

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ACRONYMS

AFE	Authorization for Financial Expenditure
AREMA	American Railway Engineering and Maintenance-of-Way Association
ATF	across-the-fence
BNSF	BNSF Railway Company
CARDS	Computer Aided Railway Design System
CMP	constrained market pricing
CTC	centralized traffic control
CY	cubic yards
DCF	discounted cash flow
EIA	Energy Information Administration, U.S. Department of Energy
EOTD	end-of-train device
FEDs	failed equipment detectors
FRA	Federal Railroad Administration
G&A	general and administrative
GAAP	generally accepted accounting principles
GDP	gross domestic product
GTM	gross ton-mile
IT	information technology
KCS	Kansas City Southern
LF	linear feet
LRR	Laramie River Railroad
LRS	Laramie River Electric Generating Station
LUM	locomotive unit-mile
MGT	million gross tons
MOW	maintenance-of-way
MMM	Maximum Markup Methodology
MRL	Montana Rail Link
MSP	Modified Straight-Mileage Prorate
PRB	Powder River Basin
R-1	Annual Report Form R-1
RCAF-A	rail cost adjustment factor, adjusted for changes in productivity
RCAF-U	rail cost adjustment factor, unadjusted for changes in productivity
ROW	right-of-way
RTC	Rail Traffic Controller
R/VC	revenue-to-variable cost
SAC	stand-alone cost
SARR	stand-alone railroad
T&E	train and engine
URCS	Uniform Railroad Costing System
WCNA	Wisconsin Central North American Railroad
WCS	Wisconsin Central System
WFA	Western Fuels Association, Inc., and Basin Electric Power Cooperative
WRPI	Western Rail Properties, Inc.

BY THE BOARD:**OVERVIEW**

This case involves a rate dispute between Western Fuels Association, Inc. and Basin Electric Power Cooperative, Inc. (collectively, WFA), and BNSF Railway Company (BNSF) over the maximum lawful rate BNSF can charge to haul 8 million tons of coal each year from the Powder River Basin (PRB) in Wyoming a short distance (200 miles) to WFA's Laramie River Station coal-fired electric utility plant at Moba Junction, WY. The Laramie River plant is served only by BNSF and there are no feasible transportation alternatives for transporting PRB coal to this facility. The reasonableness of the common carriage rates established by BNSF is therefore subject to our jurisdiction.

Prior to this dispute, rail transportation to the Laramie River plant was handled by a mutually agreeable contract entered into in 1984. This 20-year contract was the product of a settlement of an antitrust case brought by WFA against BNSF, which claimed the carrier had unlawfully exploited its monopoly position in the PRB. Under the terms of the contract, the transportation rate dropped in nominal terms from \$4 per ton (in 1984) to \$3 per ton (in 2004). During that same time period, railroad costs increased approximately 60% and demand for PRB coal production increased by 500%. When the contract expired in 2004, the parties were unable to negotiate another rail transportation contract. BNSF therefore established a common carrier rate, which was twice the expired contract rate, or roughly \$6 per ton.

Because WFA's plant is located so close to the PRB, its rate to the Laramie River plant is one of the lowest transportation rates any utility pays to acquire PRB coal. Many utilities that desire the low-sulfur PRB coal are located in distant states such as Texas or Georgia, and pay two or three times this rate. Even in comparison to other utilities located near (but not quite as close to) the PRB mines, the rate is low on a dollar-per-ton basis. The rate is also low in comparison to other PRB rates that have been challenged before the Board as unreasonable by other captive shippers.

Nonetheless, WFA considers the \$6 rate unreasonable. As it points out, the challenged rate is twice the expired contract rate, and (because the plant is only 200 miles from the PRB) the rate per mile far exceeds the rate per mile paid by utilities located further away. Standing alone, however, these facts do not indicate that the new rate is unlawful or what the maximum reasonable rate would be. Accordingly, WFA sought to demonstrate that, under the Board's stand-alone cost (SAC) test, it is cross-subsidizing other BNSF traffic by paying more than is needed to provide a reasonable return on the rail facilities necessary to serve WFA. It contended that the maximum lawful rate under the SAC test should be \$3.10 per ton (in 2005) and sought more than \$20 million per year in rate relief until the year 2024.

The record does not support WFA's claims, however. The cost of the 200 miles of rail facilities needed to serve WFA and other traffic WFA selected to share those expenses would be \$870 million. Yet the revenue generated from this traffic – including the \$50 million WFA would pay annually under the challenged \$6 rate – less operating and maintenance expenses would provide a return on this investment that is less than the cost of capital for the railroad industry. As such, it would appear that WFA is only being asked to pay for the 200 miles of rail facilities it uses, and is not being forced to cross-subsidize other parts of BNSF's broader rail network.

WFA asserts, however, that the reason its SAC presentation does not demonstrate that the rates are unreasonable is because the Board changed certain key procedures after WFA submitted its SAC presentation. See Major Issues in Rail Rate Cases, STB Ex Parte 657 (Sub-No. 1) et al. (STB served Oct. 30, 2006) (Major Issues), pets. for judicial review pending sub nom. BNSF Ry. v. STB, No. 06-1372 et al. (D.C. Cir. filed Nov. 14, 2007). WFA argues strenuously, and persuasively, that had it known that the Board would change the revenue allocation methodology for cross-over traffic, it would have offered a different case. The change to the revenue allocation methodology clearly could have prejudiced WFA. Given these circumstances, we have contemplated two alternatives. We could apply the old procedures that WFA relied upon, but which have been discredited and replaced with superior procedures. Alternatively, we could use the new procedures, but permit WFA to submit supplemental SAC information if it believes a revised case could demonstrate that the challenged rate is unreasonable.

We believe fairness dictates that WFA have an opportunity to modify its SAC presentation in light of the new revenue allocation methodology. Generally, it is not the Board's practice to permit complainants to redesign their case in light of subsequent Board decisions. In this case, however, the change would affect the basic design of a SAC case. For example, WFA included in its traffic group considerable traffic offering limited revenue contribution, as those movements are to competitively served plants. This may have been a reasonable design choice under the old revenue allocation method. But under the new approach, WFA might not have included all that traffic or might have changed the configuration of the stand-alone railroad (SARR).

This course strikes a reasonable balance by seeking to maintain reasonable rates where there is an absence of competition while promoting a safe and efficient rail system in which carriers are allowed to earn adequate revenues. See 49 U.S.C. 10101. We appreciate that redesigning its SAC presentation will require WFA to incur more litigation expenses. But we cannot, as WFA has urged, use now-discredited procedures to resolve a dispute involving millions of dollars and establish rate prescriptions that would extend for two decades. Moreover, the principal change WFA complains of is the adoption of a new revenue allocation procedure. But that change was foreshadowed by a recent federal court decision, which warned the Board that continued use of the old approach was "on shaky ground indeed." BNSF Ry. v. STB, 453 F.3d 473, 484 (D.C. Cir. 2006). As such, any attempt to apply the old revenue allocation approach might not benefit WFA in any event, as the use of the discredited method might not survive judicial review.

The decision below sets forth the evidentiary disputes, our resolution of those issues, and the basis for our conclusion that WFA has failed to demonstrate, on this record, that the challenged rates are unlawful under the SAC test. WFA will have 30 days to inform us whether it wishes to submit supplemental SAC evidence. If it chooses not to do so, we will discontinue this proceeding.

PROCEDURAL HISTORY

By complaint filed on October 19, 2004, WFA, challenges the reasonableness of rates charged by BNSF for unit-train movements of coal from origins in Campbell and Converse Counties, in the PRB of Wyoming, to Basin Electric's Laramie River Station (LRS) near Moba Junction, WY. The rail transportation to LRS electric generating station was previously

provided by BNSF under a transportation contract. When that contract was not renewed, BNSF established common carriage rates (in Common Carrier Pricing Authority 90077), effective on October 1, 2004. WFA seeks to demonstrate the unreasonableness of these rates under the agency's stand-alone cost (SAC) methodology.

The parties filed their opening presentations on March 19, 2005, their reply evidence on July 20, 2005, and their rebuttal evidence on October 3, 2005. BNSF filed a motion to strike portions of WFA's rebuttal evidence on October 20, 2005.

On February 27, 2006, the Board held this proceeding in abeyance so that it could consider various recurring methodological issues that had been raised or were implicated in the pending rate cases. See Major Issues in Rail Rate Cases, STB Ex Parte 657 (Sub-No. 1), et al. (STB served Feb. 27, 2006). WFA and BNSF, along with other interested parties, filed opening comments on the proposed rules on May 1, 2006, reply comments on June 1, 2006, and rebuttal comments on June 30, 2006. We issued final rules on October 30, 2006, adopting all of the proposed changes to our ratemaking procedures.

Meanwhile, by decision served on March 17, 2006 (First Compliance Order), the Board directed both parties to file additional evidence in this proceeding to address some gaps in the evidentiary record. In response, WFA submitted supplemental opening evidence on May 15, 2006, BNSF submitted supplemental reply evidence on June 15, 2006, and WFA submitted supplemental rebuttal evidence on July 14, 2006.

After we completed the rulemaking,¹ we issued a further decision in this proceeding on November 8, 2006 (Second Compliance Order), directing the parties to file additional evidence to reflect the methodological changes adopted in Major Issues. Accordingly, WFA filed second supplemental opening evidence on February 22, 2007, BNSF filed second supplemental reply evidence on March 26, 2007, and WFA filed its second supplemental rebuttal evidence on April 9, 2007.

PRELIMINARY MATTERS

A. Unreasonable Practice Claim

BNSF established common carriage rates for coal movements from the PRB to WFA's LRS in the last quarter of 2004. That tariff also established the mechanism by which the base rate would be increased in each subsequent year. In 2005, BNSF applied a fuel surcharge to that rate. In 2006 and again in 2007, the tariff specified a specific rate for that traffic that was approximately 15% higher each year and also applied a fuel surcharge to those higher rates. For 2008 and beyond, the tariff escalated the 2007 rate by an index of inflation (without any fuel component) in addition to the applicable fuel surcharge.²

¹ Major Issues in Rail Rate Cases, STB Ex Parte 657 (Sub-No. 1) et al. (STB served Oct. 30, 2006) (Major Issues), pets. for judicial review pending sub nom. BNSF Ry. v. STB, No. 06-1372 et al. (D.C. Cir. Filed Nov. 14, 2007).

² See WFA Open. Narr. at I-30.

WFA claims this procedure for adjusting the base rate is an unreasonable practice. In its defense, BNSF argues that this mechanism was a reasonable way to phase in a rate increase over a three-year horizon. BNSF argued that the expired 20-year contract rate was far below market rates and that a significant rate increase was warranted. But rather than take the entire rate increase in 2004, BNSF asserts it set fixed rate increases over three years to avoid any economic dislocation to WFA.³

Having carefully reviewed WFA's allegations, we conclude that it has failed to demonstrate that this mechanism constitutes an unreasonable practice. WFA's challenge to BNSF's rate adjustment procedures is a challenge to the increases in the level of the overall rate. It is based on WFA's belief that the base rate is unreasonably high and that it is therefore a "manifestly unreasonable" practice to use this adjustment procedure to charge WFA even more.⁴ But while the Board has broad authority over the reasonableness of a railroad's practices, 49 U.S.C. 10702(2), rate disputes should not be addressed via a claim of unreasonable practice. See Union Pacific R.R. v. ICC, 867 F.2d 646 (D.C. Cir. 1989). Moreover, the level of these rate increases are reflected in our rate reasonableness inquiry, such that if the base rate were unreasonably high, the resulting rate prescription would prevent BNSF from raising the rate above the maximum lawful level.

B. BNSF Motion to Strike

On October 20, 2005, BNSF filed a motion to strike portions of WFA's rebuttal evidence that BNSF regarded as new or erroneous evidence and BNSF sought leave to file a limited surrebuttal. Specifically, BNSF asks that the Board: (1) strike WFA's fuel hedging evidence presented on rebuttal or, in the alternative, accept surrebuttal evidence on the propriety of fuel hedging practices to be considered in SAC cases; (2) strike WFA's rebuttal evidence and argument concerning BNSF fuel surcharges for coal traffic and accept BNSF's evidence on recent changes to its surcharge mechanisms; and (3) accept BNSF's surrebuttal evidence showing the alleged inaccuracy of WFA's claims concerning BNSF's proposed 25-mile block Modified Straight-Mileage Prorate (MSP). On November 9, 2005, WFA replied in opposition to BNSF's motion. The second and third issues in BNSF's motion have been rendered moot by our determinations in Major Issues to apply a standard approach to indexing operating costs and replacing the MSP method.

BNSF's remaining allegation is that WFA improperly introduced a new argument on rebuttal to justify the use of 4th quarter 2004 (4Q04) system-average fuel prices. In its opening evidence, WFA projected fuel operating costs for the stand-alone railroad (SARR) based on BNSF's 4Q04 system-average fuel prices. In support of the use of system-average prices, WFA argued that the SARR's start-up fuel demands would attract pipeline capacity in the area, thus lowering fuel prices. In its reply evidence, BNSF argued that the SARR's fueling locations would need to be supplied with diesel fuel, as BNSF currently is supplied, and submitted BNSF's actual 4Q04 actual fuel prices at these locations. On rebuttal, WFA argued that BNSF's 4Q04 actual prices exclude BNSF's fuel hedging activities, and as a result, BNSF's fuel costs are

³ See BNSF Reply Narr. at III.A-27.

⁴ See WFA Open. Narr. at I-32 and WFA Brief at 22-24.

overstated. BNSF contends that WFA's hedging discussion was a new argument impermissibly introduced on rebuttal. WFA argues that the discussion was an attempt to show that BNSF's reply evidence was inaccurate and unsupported.

Our general rules of practice limit the permissible scope of rebuttal statements "to issues raised in the reply statements to which they are directed." 49 CFR 1112.6. Thus, as the Board explained in Duke/NS,⁵ in rail rate cases the shipper may use its rebuttal presentation either to demonstrate that its opening evidence was feasible and supported, to adopt the railroad's evidence, or in certain circumstances to refine its opening evidence. Where the railroad has identified flaws in the shipper's evidence but has not provided evidence that can be used in the Board's SAC analysis, or where the shipper shows that the railroad's reply evidence is itself unsupported, infeasible or unrealistic, the shipper may supply corrective evidence in its rebuttal. See General Procedures for Presenting Evidence in Stand-Alone Cost Rate Cases, 5 S.T.B. 441, 445-46 (2001).

Applying these evidentiary standards, we find that WFA's evidence and argument on fuel hedging was permissible rebuttal to the feasibility and accuracy of BNSF's reply evidence. Therefore, we will deny BNSF's motion to strike.

We will also deny BNSF's alternative request to supplement the record with evidence on its fuel surcharge revenues. After discovery closed in this case, BNSF modified its fuel surcharge programs. But such changes (which generally appear to have lowered revenue from such surcharges) may have been offset by general increases in the transportation rates that BNSF has imposed since discovery closed. To reopen the record only on the issue of fuel surcharges, without permitting broader discovery into changes in rates and volume, could bias our analysis. If BNSF believes that the revenue forecasts for the traffic group are understated, it may file an appropriate motion for reopening under the standards set forth in 49 U.S.C. 722(c). We will not, however, permit it to selectively reopen the record to supplement one component of the revenue from the traffic group.

MARKET DOMINANCE

We can consider the reasonableness of a challenged rail rate only if the carrier has market dominance over the traffic involved. 49 U.S.C. 10701(d)(1), 10707(b), (c). Market dominance is "an absence of effective competition from other rail carriers or modes of transportation for the transportation to which a rate applies." 49 U.S.C. 10707(a). A carrier is not considered to have market dominance if the rate it charges is less than 180% of its variable cost of providing the service. 49 U.S.C. 10707(d)(1)(A).

In Major Issues, we adopted a change to our method of determining whether the quantitative component of the market dominance test has been met. Specifically, we disallowed movement-specific adjustments to the defendant carrier's system-average variable cost data when calculating the 180% revenue-to-variable cost (R/VC) jurisdictional floor for rate relief. As discussed in Major Issues at 47-61, we rely solely on the system-average variable cost generated by the Board's Uniform Railroad Costing System (URCS), using the nine movement-

⁵ Duke Energy Corp. v. Norfolk S. Ry., STB Docket No. 42069 (STB served Nov. 6, 2003) (Duke/NS) at 14-15.

specific factors inputted into Phase III of URCS, with the only adjustments to the URCS Phase III program being those adopted in Ex Parte No. 431 (Sub-Nos. 1 and 2).⁶

In this case, BNSF does not contest WFA's claim that there are no effective competitive alternatives for transporting coal between PRB mines and LRS. For the five issue movements, both parties calculate R/VC percentages in excess of 180%. Thus, we find that BNSF has market dominance over this traffic.

RATE REASONABLENESS STANDARDS

A. Constrained Market Pricing

The Board's general standards for judging the reasonableness of rail freight rates are set forth in Coal Rate Guidelines, Nationwide, 1 I.C.C.2d 520 (1985) (Guidelines), aff'd sub nom. Consolidated Rail Corp. v. United States, 812 F.2d 1444 (3d Cir. 1987), as modified in Major Issues. These guidelines adopt a set of pricing principles known as "constrained market pricing" (CMP). The objectives of CMP can be simply stated. A captive shipper should not be required to pay more than is necessary for the carrier involved to earn adequate revenues. Nor should it pay more than is necessary for efficient service. And a captive shipper should not bear the cost of any facilities or services from which it derives no benefit. Guidelines, 1 I.C.C.2d at 523-24.

CMP contains three main constraints on the extent to which a railroad may charge differentially higher rates on captive traffic.⁷ The revenue adequacy constraint ensures that a captive shipper will "not be required to continue to pay differentially higher rates than other shippers when some or all of that differential is no longer necessary to ensure a financially sound carrier capable of meeting its current and future service needs." Id. at 535-36. The management efficiency constraint protects captive shippers from paying for avoidable inefficiencies (whether short-run or long-run) that are shown to increase a railroad's revenue need to a point where the shipper's rate is affected. Id. at 537-42. The SAC constraint protects a captive shipper from bearing costs of inefficiencies or from cross-subsidizing other traffic by paying more than the revenue needed to replicate rail service to a select subset of the carrier's traffic base. Id. at 542-46. As stated, WFA seeks relief under the SAC constraint.

⁶ See Review of the General Purpose Costing System, 2 S.T.B. 659 (1997). Those adjustments include the so-called "270" volume shipment adjustments, the make-whole adjustments, rail trailer-on-flatcar/container-on-flatcar adjustments, and RoadRailer adjustments. In addition, the circuitry factor is always set to one when actual miles are used to calculate the variable costs.

⁷ A fourth constraint – phasing – can be used to limit the introduction of otherwise-permissible rate increases when necessary for the greater public good. Guidelines, 1 I.C.C.2d at 546-47.

B. SAC Test

A SAC analysis seeks to determine whether a complainant is bearing the cost of any inefficiencies or the cost of any facilities or services from which it derives no benefit; it does this by simulating the competitive rate that would exist in a “contestable market.” A contestable market is defined as one that is free from barriers to entry. The economic theory of contestable markets does not depend on a large number of competing firms in the marketplace to assure a competitive outcome. Id. at 528. In a contestable market, even a monopolist must offer competitive rates or lose its customers to a new entrant. Id. In other words, contestable markets have competitive characteristics which preclude monopoly pricing.

To simulate the competitive price that would result if the market for rail service were contestable, the costs and other limitations associated with entry barriers must be omitted from the SAC analysis. Id. at 529. This removes any advantages which the existing railroad would have over a new entrant that create the existing railroad’s monopoly power. A SARR is therefore hypothesized that could serve the traffic at issue if the rail industry were free of entry barriers. Under the SAC constraint, the rate at issue cannot be higher than what the SARR would need to charge to serve the complaining shipper while fully covering all of its costs, including a reasonable return on investment. This analysis produces a simulated competitive rate against which we judge the challenged rate. Id. at 542.

To make a SAC presentation, a shipper designs a SARR specifically tailored to serve an identified traffic group, using the optimum physical plant or rail system needed for that traffic. Using information on the types and amounts of traffic moving over the defendant’s rail system, the complainant selects a subset of that traffic (including its own traffic to which the challenged rate applies) that the SARR would serve.

Based on the traffic group to be served, the level of services to be provided, and the terrain to be traversed, a detailed operating plan must be developed for the SARR. Once an operating plan is developed that would accommodate the traffic group selected by the complainant, the system-wide investment requirements and operating expense requirements (including such expenses as locomotive and car leasing, personnel, material and supplies, and administrative and overhead costs) must be estimated. The parties must provide appropriate documentation to support their estimates.

It is assumed that investments normally would be made prior to the start of service, that the SARR would continue to operate into the indefinite future, and that recovery of the investment costs would occur over the economic life of the assets. The Board’s SAC analyses are limited to a finite period of time and examine the revenue requirements for the SARR based on the operating expenses that would be incurred over that period and the portion of capital costs that would need to be recovered during that period.⁸ A computerized discounted cash flow (DCF) model simulates how the SARR would likely recover its capital investments, taking

⁸ Following the procedures in many prior SAC cases, the parties in this case used a 20-year SAC analysis period. In Major Issues (at 61-66), we decided that in future cases the analysis period would be 10 years. But we did not require the parties to shorten the analysis period in this case.

into account inflation, Federal and state tax liabilities, and a reasonable rate of return. The annual revenues required to recover the SARR's capital costs (and taxes) are combined with the annual operating costs to calculate the SARR's total annual revenue requirements.

The revenue requirements of the SARR are then compared to the revenues that the defendant railroad is expected to earn from the traffic group. There is a presumption that the revenue contributions from non-issue traffic should be based on the revenues produced by the current rates. Traffic and rate level trends for that traffic group are forecast into the future to determine the future revenue contributions from that traffic.

The Board then compares the revenue requirements of the SARR against the total revenues to be generated by the traffic group over the SAC analysis period. A present value analysis is used that takes into account the time value of money, netting annual over-recovery and under-recovery as of a common point in time. If the present value of the revenues that would be generated by the traffic group are less than the present value of the SARR's revenue requirements, then the complainant has failed to demonstrate that the challenged rate levels violated the SAC constraint. If the present value of the revenues from the traffic group exceeds the present value of the revenue requirements of the SARR, then the Board must decide what relief to provide to the complainant by allocating the revenue requirements of the SARR among the traffic group and over time.

STAND-ALONE COST ANALYSIS

In this case, WFA designed a hypothetical SARR called the Laramie River Railroad (LRR) to serve a traffic group consisting of coal traffic moving in unit-train service from PRB coal fields in Wyoming. In addition to the LRS traffic, the LRR would serve other PRB coal traffic that would be interchanged with the residual BNSF (i.e., the portion of the BNSF system that would not be replicated by the LRR).

A. LRR Configuration

The LRR would replicate a portion of BNSF's operating division known as the Powder River Division. Its route would lie primarily within the PRB, and extend from Eagle Butte Junction, WY, on the north, to Guernsey and Moba Junction (near Wheatland), WY, on the south. The LRR's main line would start at Donkey Creek, WY, proceeding south to East Guernsey, WY, replicating BNSF's Orin and Canyon Subdivisions. The LRR would have three branch lines: Campbell, Reno, and Moba Branches. Moba Branch would connect with the main line at Wendover, WY, and serve LRS.

The LRR would interchange traffic with the residual BNSF at Campbell, Donkey Creek, Orin Junction, Guernsey, and Moba Junction, WY. At Donkey Creek and Guernsey, the LRR would interchange with BNSF at yards. At Campbell, Orin Junction, and Moba Junction, the interchange points would consist of interchange tracks.

A map of the LRR system and our resolution of evidentiary disputes regarding the amount of track that would be needed for the LRR to operate this system are contained in **Appendix A**.

B. LRR Traffic Group

WFA has selected a traffic group that includes 76 power plants that procure coal from the PRB coal fields. The LRR would carry all of the traffic over the same routes that BNSF itself used for that traffic. As discussed below, the parties disagree on the permissible scope of the traffic group, how to allocate revenues from “cross-over traffic,” and how to forecast the amount of tonnage and revenues that the traffic group would generate over the analysis period.

1. Northern PRB Traffic

BNSF objects to WFA’s inclusion of traffic that would use only the LRR facilities north of Donkey Creek, traveling over the SARR for less than 15 miles before being interchanged with the residual-BNSF at Donkey Creek.⁹ BNSF argues that the inclusion of this traffic results in an impermissible internal cross-subsidy of WFA’s traffic. But BNSF does not use the Board’s PPL test for detecting an internal cross-subsidy. Rather, BNSF proposes an entirely new approach. BNSF would exclude the revenues from this traffic, a portion of operating costs associated with this traffic, and the construction costs of the facilities north of Donkey Creek. This approach, BNSF argues, would ensure that traffic originating from the northern PRB mines and that does not use the facilities south of Donkey Creek would not pay for any portion of the SARR facilities south of Donkey Creek.

BNSF has failed to explain why the Board should not use its established test for detecting an impermissible internal cross-subsidy. Moreover, BNSF’s approach is flawed because it does not permit the disputed traffic to make any contribution to unattributable operating costs. Having failed to identify any section of the SARR that is not self-supporting, BNSF has not met its burden to demonstrate that the SAC presentation rests upon an improper internal cross-subsidy. We will therefore include this disputed traffic in our analysis.

2. Cross-Over Traffic

As in many recent cases, the complainant here relies on “cross-over” traffic to simplify its SAC presentation. Cross-over traffic refers to movements for which the LRR would not replicate all of BNSF’s current movement, but would instead interchange the traffic with the residual portion of the BNSF system. The use of cross-over traffic to simplify the SAC presentation is a well-established practice.¹⁰ It enables the SAC analysis to take into account the

⁹ See BNSF Reply Narr. at III.A-63-66.

¹⁰ See, e.g., Duke Energy Corp. v. CSX Transp., Inc., STB Docket No. 42070, slip op. at 20-22 (STB served Feb. 4, 2004) (Duke/CSXT); Texas Municipal Power Agency v. Burlington N. & S.F. Ry., STB Docket No. 42056, slip op. at 17-18 (STB served Mar. 24, 2003) (TMPA); Bituminous Coal—Hiawatha, UT to Moapa, NV, 10 I.C.C.2d 259, 265-68 (1994) (Nevada Power).

economies of scale, scope, and density that the defendant carrier enjoys over the routes replicated.¹¹

BNSF objects to the use of cross-over traffic as a modeling device. But this device has become an indispensable part of administering a workable test. Without cross-over traffic, the SARR would need to replicate the entire service provided by the defendant railroad for all of the traffic included in the SAC analysis, so that all capital and operating costs associated with serving the traffic group would be included in the SAC analysis, rather than relying on the “residual defendant” to provide part of the transportation. Such an expanded SAC analysis, however, could be impracticable and would not allow us to meet our regulatory objectives, and we must guard against the SAC process becoming so complex and expensive as to deny captive shippers meaningful access to the rate review provided for under Guidelines.¹²

As explained in Xcel, we must balance the impact on the accuracy of the SAC analysis from including cross-over traffic against the daunting complexity and cost of a SAC analysis without cross-over traffic. We must therefore balance the degree of accuracy to be achieved against the consequences of making a SAC presentation even more complex and expensive. We continue to believe that this balance is best achieved by permitting the use of cross-over traffic. See BNSF Ry. v. STB, 453 F.3d 473, 482-83 (D.C. Cir. 2006) (affirming the use of cross-over traffic as a reasonable simplifying device).

3. Revenue Allocation

When cross-over traffic is used to simplify the SAC presentation, a key issue is what portion of the revenues from cross-over traffic should be attributed to the part of the move handled by the SARR network and what portion to the part of the move occurring off-SARR on the defendant’s residual network. The objective is to reflect, to the extent practicable, the defendant carrier’s relative costs of providing service over each of the two segments.¹³ In recent SAC cases, the Board used the MSP approach, in which revenue from cross-over traffic was allocated based on the total mileage hauled by the SARR and the residual carrier, while retaining a 100-mile additive for originating or terminating the traffic to reflect the additional costs associated with providing those services.¹⁴

¹¹ TMPA at 17 (citing Nevada Power, 10 I.C.C.2d at 265 n.12). For a lengthy discussion of the use of this modeling device in SAC decisions, see Public Serv. Co. of Colo. d/b/a Xcel Energy v. Burlington N. & S.F. Ry., STB Docket No. 42057, slip op. at 13-17 (STB served June 8, 2004) (Xcel).

¹² See Consolidated Rail Corp. v. United States, 812 F.2d 1444, 1462 (3d Cir. 1987) (Becker, J., concurring in part) (cautioning the Interstate Commerce Commission not to let the SAC test become prohibitively expensive).

¹³ Duke/NS at 18-20.

¹⁴ See Otter Tail Power Co. v. BNSF, STB Docket No. 42071, slip op. 13-17 (STB served Jan. 27, 2006) (Otter Tail); Xcel at 20-22; Carolina Power & Light Co. v. Norfolk S. Ry., STB Docket No. 42072, slip op. at 20-21 (STB served Dec. 23, 2003) (CP&L); Duke/NS at 22-25.

WFA used the MSP revenue allocation. However, in Major Issues, we decided to replace the MSP method with an “Average Total Cost” (ATC) approach to reflect economies of density. See Major Issues at 31. ATC uses URCS variable and fixed costs for the carrier, and the density and miles of each segment, to develop the average total cost per segment of a move. Revenues from the cross-over traffic are then allocated in proportion to the average total cost of the movement on- and off-SARR. See id. at 34.

Accordingly, we directed the parties to present supplemental evidence using the ATC revenue allocation method. WFA therefore submitted its ATC calculations, reflecting its implementation of ATC. BNSF adjusted WFA’s calculations to correct three problems BNSF identified with WFA’s implementation. In reply, WFA disputes BNSF’s adjustments. We have detected a fourth issue with the way both parties implemented the ATC approach. We address these four issues below.

a. Interchange Costs

BNSF contends that WFA improperly allocated a larger share of the revenues to the SARR by developing variable cost information that included fictional interchanges costs between the SARR and the residual railroad. We agree. The purpose of the ATC revenue allocation is to determine how much of the revenue that the defendant carrier collects for the total movement should be allocated to each segment of the movement based on the costs that need to be recovered on each segment and the amount of other traffic on each segment available to share the joint and common costs. See Major Issues at 25 (“By focusing on the ratio of actual costs incurred by the carrier, the revenue allocation method should maintain, to the extent possible, the relationship between revenues and costs that would exist in a full SAC analysis); id. at 31 (“ATC is a suitable methodology that meets the Board’s stated goals of reflecting, to the extent practical, the carrier’s relative average costs of providing service over the two segments.”); id. at 35 (“the ATC method . . . is keyed to the defendant carrier’s relative costs of providing service”) (emphasis added). Accordingly, we use BNSF’s variable cost evidence.

b. Trackage Rights Segments

BNSF argues that WFA did not properly account for the costs associated with those segments of a move where BNSF uses the track of another carrier under a trackage rights arrangement. Specifically, BNSF asserts that WFA included the mileage for these segments in its calculation of the system fixed costs per route mile, but then failed to allocate any fixed costs to these segments. BNSF has suggested two possible ways to fix this problem. The simplest way would be to exclude these segments from the mileage computation for the fixed costs per route mile calculation, thereby assigning fixed costs only to BNSF-owned segments. Alternatively, BNSF suggests calculating the fixed costs per route mile for trackage rights segments differently than for BNSF-owned segments. Under this proposal, only the “above-the-rail” fixed costs would be used for trackage rights segments—as BNSF claims that this is the only cost it incurs for these segments—while it would calculate both above-the-rail and “below-the-wheel” fixed costs for BNSF-owned segments. BNSF has submitted calculations using each approach.

WFA concedes that it neglected to allocate fixed costs to BNSF’s trackage rights segments, but WFA does not agree with either of BNSF’s suggestions. WFA argues that it

would be inappropriate to exclude the trackage rights segments from the ATC calculation completely, and we agree. WFA also argues that BNSF's second alternative approach would add an unnecessary layer of complexity to the ATC procedure. Instead, WFA recalculated BNSF's average fixed costs assignable to all route segments, including trackage rights segments, by incorporating the density data for joint facility segments that BNSF provided.

We find BNSF's alternative procedure, calculating the fixed costs per route mile for trackage rights segments differently than for BNSF-owned segments, reasonable and not overly complex or burdensome. BNSF simply included those URCS fixed costs that relate to track and roadbed (URCS Worktables D1 and D2) in the below-the-wheel cost, and the URCS fixed costs that relate to road operations, yard operations, equipment and overheads (URCS Worktables D3 through D8) in the above-the-rail cost. WFA has not demonstrated that BNSF's alternative approach is flawed or inaccurate and has failed to adequately explain its own rebuttal methodology. Accordingly, we use BNSF's approach of calculating trackage rights segments differently than BNSF-owned segments.

c. Density Segment

In calculating revenue allocations for cross-over traffic, WFA used a weighted average of the densities of the on-SARR and off-SARR portions of a move. BNSF claims that, rather than relying on the average density for these two portions of the move, a more accurate result can be achieved by separately measuring individual "density segments" within these two portions.

On rebuttal, WFA claimed that its procedure was required by the Board, citing to the notice of proposed rulemaking (NPRM) for Major Issues.¹⁵ That discussion, however, actually supports BNSF's approach. In describing how ATC would be implemented, the NPRM used a simplified example that referred to the on-SARR segment and off-SARR segment. It stated that the parties "would then need to calculate the average fixed cost (AFC) per ton of traffic using the various segments" which "could then be combined with the route miles and the traffic density of any particular segment of the railroad's network."¹⁶ The use of the phrase "any particular segment of the railroad's network" indicated that a line would be segmented based upon differing densities, as BNSF has done.

BNSF provided compelling and unrebutted evidence that the approach used by WFA would understate the average cost per ton for a movement.¹⁷ Because BNSF's approach more precisely derives the average-fixed costs per ton associated with each cross-over movement, we will use its approach.

¹⁵ Major Issues in Rail Rate Cases, STB Ex Parte No. 657 (Sub-No. 1), slip op. at 20 (STB served Feb. 27, 2006).

¹⁶ Id.

¹⁷ See BNSF Response to Second Compliance Order at 6.

d. Application of ATC

After the parties developed their respective relative average total costs, they then allocated the *total revenue* from the cross-over movements in accordance with ATC. Because the traffic group includes considerable traffic with total revenue either below or barely above variable cost, and because the off-SARR segments of the movements have lower densities, the practical effect of the parties' approach would be to drive the R/VC percentages of the movements below 100% (or if the total revenue is already less than variable costs, the effect is to drive the percentage even lower). This means the on-SARR revenue allocation for those movements would be insufficient to cover the variable cost (as calculated using URCS) of handling traffic for the highest-density portion of a movement.

To avoid such an illogical and unintended result, we make a necessary refinement to the ATC approach here. Instead of applying ATC allocation procedure to total revenue, we will apply the same allocation procedure to total revenue *contribution* (i.e., revenue in excess of variable cost as calculated by URCS). Accordingly, the revenue assigned to the on-SARR part of a cross-over movement will equal the variable cost to haul the traffic over the facilities replicated by the SARR plus the portion of available revenue contribution allocated in accordance with ATC.¹⁸

This refinement is reasonable and consistent with our objective in Major Issues. Traffic must cover its variable costs before it can be expected to make any contribution to joint and common costs. Therefore, the objective is how to allocate the revenue *contribution* (if any is available) between the facilities replicated by the SARR and those of the residual incumbent. While the language used in Major Issues to explain the basic ATC approach led the parties to allocate total revenue rather than total revenue contribution, we did not contemplate this situation, where such a procedure would result in other traffic on the SARR cross-subsidizing those cross-over movements with on-SARR revenue allocations below variable costs. Such a result would plainly conflict with our express purpose to find a non-biased, cost-based method. See Major Issues at 32.

4. Tonnage and Revenues

The annual tonnage and revenues for the LRR traffic group are addressed in **Appendix B**. As discussed there, we rely on the coal tonnage and revenue projections for the PRB region obtained from the U.S. Department of Energy's Energy Information Administration (EIA) to project future tonnage for the traffic group for 2004 (4Q04) through 2023 (3Q23) (Annual Energy Outlook 2006).

¹⁸ For those movements in the traffic group where total revenues do not exceed the total variable cost to haul the movement from origin to destination (as calculated by URCS), we will apply the same R/VC percentage to both the on-SARR and off-SARR portions of the movement.

C. Operating Expenses

The LRR was designed to be an efficient, modern, coal-only freight railroad. All trains would operate as unit coal trains, of the same size as those operated by BNSF during the base year. The train sizes and locomotive consists are the same throughout the analysis period. Increased volumes were accounted for by adding trains for each origin/destination (O/D) pair that are equivalent to the size of the trains operated by BNSF in the base year. The coal trains would use distributed power, which involves positioning a locomotive at the rear of the train, thereby reducing the drawbar tension between cars and enabling the same number of locomotives to haul heavier, longer trains.

As discussed below, we use WFA's operating plan with minor modifications. All other evidentiary disputes are discussed and resolved in **Appendix C**.

1. Operating Plan

How a SARR would operate is a prime determinant of the configuration (physical plant) and annual operating expenses of the SARR. The operating plan must be able to meet the transportation needs of the traffic the SARR proposes to serve. It need not match existing practices of the defendant railroad, as the objective of the SAC test is to determine what it would cost to provide the service with optimal efficiency. However, the assumptions used in the SAC analysis, including the operating plan, must be realistic, i.e., consistent with the underlying realities of real-world railroading.

Following agency precedent in Xcel and Otter Tail, WFA used the Rail Traffic Controller (RTC) model to test its operating plan against its proposed configuration for the LRR. The model simulates the flow of traffic projected for the peak week (September 2 through September 8) of the peak year (2024) over the LRR. The model permits WFA to both test the adequacy of the configuration (to make sure the LRR will have sufficient capacity to handle the peak forecast demand), and then to derive the segment-by-segment cycle times (which it then used to develop the operating costs of the LRR in the base year).

In the First Compliance Order, the Board directed the parties to submit a RTC simulation based on certain assumptions and with certain adjustments. The basis for the assumptions and adjustments we directed the parties to use in the First Compliance Order are discussed below.

a. Mine Slots

In the PRB, mines located on the joint line are served by both the BNSF and the UP and the mine tracks are owned and controlled by the mines. Because more than one railroad serves these mines, and the mine tracks have limited capacity to hold trains, the LRR cannot place empty trains at the mines without considering the other real world demands. Following the modeling approach the Board used in Xcel and Otter Tail (an approach also used by BNSF in those cases), WFA addressed this issue by using historic dwell times at the mines, which reflects the time BNSF trains spend waiting to be loaded because another BNSF or UP train got there first.

In its reply, BNSF now claims that the modeling approach it used in Xcel and Otter Tail fails to adequately account for the presence of UP and residual BNSF trains at these jointly-

served mines.¹⁹ BNSF argues that the agreed-upon dwell times (the same time used by the Board in TMPA, Xcel, and Otter Tail) were insufficient to capture the full extent of the delays. According to BNSF, while this dwell time reflects the time a train spends at the mine after it is admitted to the mine's limited track capacity, it does not capture the delay before the train can enter the mine if there is no space available at the mine for a train to enter.

BNSF therefore modified WFA's RTC model simulation to account for the presence of non-SARR trains at the mines. It determined the actual times that a non-SARR train arrived at the loading tracks of the mine during the 13-day period that was the basis of WFA's RTC simulation. Using these real-world times, BNSF assumed that such a non-SARR train would occupy (to seek to occupy) a loading track at the same time in the RTC simulation. Under this approach, if the mine had the capacity to handle two trains and only one train were in the mine, a SARR train seeking to enter would have no impediment to entry. If, however, the same mine already had two trains occupying the loading tracks (say one non-SARR and one SARR train), then the RTC model would not permit a newly arrived train to enter until one of the occupying trains left. If there were a line of trains waiting to enter, priority would generally be given on a first-come-first-served basis.

On rebuttal, WFA argued that BNSF's approach plainly overstated the impact of the presence of non-SARR trains at the mines for several reasons.²⁰ First, it observed that the dwell time already incorporated some of the delay associated with non-SARR trains. Second, WFA noted that it would be unlikely that non-SARR trains would arrive at the jointly served mines during the 2024 peak period at the same time they arrived at these mines in 2004. Third, WFA argued that BNSF's modeling technique assumed no coordination between the SARR and the residual carriers that would also serve these mines, notwithstanding that the SARR would have nearby empty-train staging facilities at Donkey Creek. Moreover, to address this concern, WFA allocated 2 extra hours of dwell time at the Donkey Creek facilities for each empty train, which it argued would be sufficient to coordinate mine arrivals.

We have two additional concerns with how BNSF modeled the presence of non-SARR trains at the jointly served mines. First, to estimate the "congestion delay" at these mines associated with non-SARR traffic also trying to access these mines, BNSF assumed growth in traffic forecast but no countervailing growth in mine loading capacity. In other words, BNSF assumed that the mines will not add any loading capacity over 20 years, even though demand is forecast to increase considerably over that same time period. This had the effect of overstating the likely degree of congestion in the peak period.

A second flaw is more problematic, however. BNSF uses the cycle times from the peak week of the peak year (2024) to derive the annual operating statistics of the SARR in the base year (2004). By using the most congested week in the worst year to develop its "average" cycle times, BNSF risks grossly overstating the increased operating costs associated with the presence of non-SARR trains at these jointly served mines. Even if we concluded that BNSF has accurately captured the congestion delay in the peak week of the peak year – which it appears to

¹⁹ See BNSF Reply Narr. at III.B-9.

²⁰ See WFA Reb. Narr. at III-C-25-30.

have overstated – it does not follow that we should impute the same level of congestion into 2004, and for non-peak periods. BNSF offered no evidence of the extent of congestion delay associated with non-SARR trains in 2004 (rather than the peak week of 2024).

While we have reservations over whether modeling residual defendant trains is consistent with contestable market theory, we need not resolve the issue as BNSF failed to adequately support its proposed procedures. The approach used by WFA for modeling the flow of trains into these jointly served mines follows our precedent in Xcel and Otter Tail, and BNSF has not justified a departure from that precedent.

b. Random Outages

Another dispute over the operating plans involved the number of “random outages” to include in the RTC model. A random outage is an event that results in a train being delayed or stopped, due to such common events as a derailment, train breakdown, flood, fire, or obstruction at an at-grade crossing.

On opening, WFA assumed that the same number of random outage incidences that BNSF experienced in the 2004 peak period on the lines replicated by the SARR. WFA assumed the outages would occur at the same locations and for the same duration during the 2024 RTC simulation period. BNSF agreed with this approach, but observed that WFA had excluded 9 additional “trouble tickets” during that time period. (A trouble ticket means that BNSF employees reported a problem or potential problem that affects track or signalling to the dispatcher.) BNSF’s Daily Performance Reports give a clear summary of all the information necessary to determine whether such outages should be incorporated into the RTC model, including pertinent details such as the nature of the event, the location, the cause, and the duration. A detailed review of BNSF’s data showed that all of the events were the sort that should be reflected as random outages.

c. Dwell Times at Guernsey Yard and LRS Unloading Facility

Finally, there is a small dispute between the parties over the necessary dwell time at the Guernsey yard and the LRS unloading facility. At the LRS unloading facility, the parties agree on the time it would take to unload trains; but disagree on the dwell time at the facility, from arrival to release of the train. WFA bases its dwell time on discussions with a contractor that unloads the trains at the LRS facility. BNSF bases its dwell time at the LRS unloading facility on historical records from 4th quarter 2003 through 3rd quarter 2004. We use BNSF’s dwell time as the best evidence of record because it is based on real world experience and WFA has failed to adequately explain how the LRR would shorten that dwell time.

For the Guernsey yard, the parties agree on the dwell time needed for empty trains and loaded trains, but BNSF would add time for fueling trains and adding a fourth locomotive to the rear of trains. On rebuttal, WFA agreed to the additional time for fueling trains but not for adding a fourth locomotive. We find that BNSF has not shown that WFA’s dwell time cannot feasibly accommodate the time needed to add a fourth locomotive. Therefore, we use WFA’s dwell time for empty and loaded trains, including the additional time for fueling, at the Guernsey yard.

D. Road Property Investment

There is a substantial difference between the parties' estimates of the level of investment that would be required to construct the LRR. WFA claims that the LRR could be built for \$817,948,552, while BNSF claims that the cost would be \$1,379,309,020. Our resolution of the disputes concerning the various component parts of these figures is discussed in **Appendix D**. As shown, we find that total road property investment costs for the LRR would be \$852,198,015. **Table D-1** in **Appendix D** provides a summary of the parties' investment figures by category and our restatement.

E. DCF Analysis

A DCF analysis is used to distribute the total capital costs (in current year dollars) of the LRR over the SAC analysis period. Operating expenses are calculated for a base year and forecast into other years by indexing for inflation and forecasted changes in tonnage. The LRR's total revenue requirements (capital and operating expenses) are then compared against the stream of revenues BNSF is expected to earn from the traffic group, discounted to the starting year (2004).

An important issue in SAC cases is how to adjust the base-year operating expenses for inflation over the analysis period. We publish a version of the RCAF that does not take into account changes in the rail industry's productivity (referred to as the unadjusted RCAF, or RCAF-U) as well as one that does (referred to as the adjusted RCAF or RCAF-A). See 49 U.S.C. 10708 (requiring quarterly publication by the Board of both the RCAF-U and RCAF-A). Here, both parties used projections of the rail cost adjustment factor (RCAF), an index of railroad costs that we publish on a quarterly basis.

In their opening evidence, WFA adjusted the base-year operating expenses by 0.53% of the forecasted changes in the RCAF-U, which constituted the midpoint between Global Insight's forecast of the RCAF-A and Global Insight's forecast of the RCAF-U, over the twenty-year DCF period.²¹ On reply, BNSF objects to WFA's approach, arguing that the LRR will enjoy no productivity gains until 2014, and thereafter will enjoy only marginal productivity improvements.²² Utilizing more recent Global Insight RCAF-A and RCAF-U forecasts,²³ BNSF adjusted operating expenses by the RCAF-U until 3Q 2014. After 3Q 2014, BNSF adjusted approximately 75% of the LRR operating expenses using the RCAF-U, with the remaining 25% adjusted using a "hybrid" RCAF-U/RCAF-A index.²⁴ Application of the BNSF index results in a composite annual average productivity factor of 0.26% during the twenty-year DCF period.²⁵

²¹ See WFA Open. Narr. at III-G-14.

²² See BNSF Reply Narr. at III.G-3-17.

²³ See WFA Reb. Exh. III-G-1.

²⁴ See BNSF Reply Narr. at III.G-13-17; BNSF Reply Exh. III.H-1.xls, sheet "operating SAC."

²⁵ Id.

On rebuttal, WFA also relied on the updated RCAF forecasts, but continued to use the mid-point between the updated RCAF-A and RCAF-U forecasts (0.59% of RCAF-U). Application of the refined index produces an annual average productivity factor of 1.1%.²⁶

In Major Issues (at 40-47), we decided on a new, standardized approach for indexing a SARR's base-year operating expenses to account for projected changes in costs over the analysis period. We adopted a hybrid approach, using RCAF-U to project the SARR's operating expenses in the first year and phasing in the productivity gains projected in RCAF-A incrementally over the analysis period. We will apply this approach to the evidence in this case as follows:

Table 1
Forecast Annual Change in Operating Expenses

Year	RCAF-U	RCAF-A	STB
2004	0.00%	0.00%	0.00%
2005	8.02%	5.15%	7.88%
2006	2.19%	-0.55%	1.91%
2007	0.86%	-0.55%	0.65%
2008	1.54%	0.37%	1.30%
2009	2.27%	1.10%	1.98%
2010	1.98%	0.54%	1.54%
2011	2.18%	0.36%	1.54%
2012	1.97%	0.18%	1.25%
2013	2.09%	0.00%	1.15%
2014	1.97%	-0.18%	0.89%
2015	2.75%	0.36%	1.43%
2016	2.75%	0.36%	1.31%
2017	2.75%	0.36%	1.19%
2018	2.75%	0.36%	1.07%
2019	2.75%	0.36%	0.95%
2020	2.75%	0.36%	0.83%
2021	2.75%	0.36%	0.72%
2022	2.75%	0.36%	0.60%
2023	2.75%	0.36%	0.48%
2024	2.06%	0.27%	0.27%

The remaining DCF disputes are addressed in **Appendix E**. Based on the record presented here, we find that the present value of the expected revenues from the traffic in the stand-alone group is less than the present value of the LRR's expected revenue requirement by approximately \$87,792,138, or 4.01 percent.

²⁶ This 1.1% is determined by dividing the projected annual change in the RCAF-U (1.026) by the projected annual change in the RCAF-A (1.015).

F. Implementation of New Procedures

WFA objects to the application of the new procedures adopted in Major Issues to this case. It argues that, had it known the Board would apply the different revenue allocation method, it would have designed a different SARR. WFA therefore has asked that we apply the old procedures, particularly the MSP method for allocating revenues from cross-over traffic. Presumably, WFA would have us apply all the old procedures – even those which favor the carrier such as the percent reduction method or forecasting operating expenses without any adjustment for productivity – and not just those that favor WFA.

We do not believe it is appropriate to apply flawed or discredited procedures, rather than the superior procedures adopted in Major Issues. With regard to the revenue allocation methodology, which is the focus of WFA's objections, a federal court has explicitly warned that, if the Board were "presented with a model that took account both of the economies of density and of the diminishing returns thereto, a decision to adhere to its MSP model would be on shaky ground indeed."²⁷ Moreover, while complainants may have relied on MSP in designing the SARR, they should have been aware that the Board had no established methodology (e.g., PPL at 7. n.14 and Duke/NS at 17 n.27), that the MSP approach has long been under attack, (e.g., Xcel at 17-19 and Otter Tail at 13-17) and that the Board has stated its preference for an approach that can take economies of density into account (see Duke/NS at 22).

Nonetheless, we believe fairness dictates that WFA have an opportunity to modify its SAC presentation in light of the new revenue allocation methodology. Generally, it is not the Board's practice to permit complainants to redesign their case in light of subsequent Board decisions. In this case, however, the change from MSP to ATC would affect the basic design of a SAC case. For example, WFA included in its traffic group considerable traffic offering limited revenue contribution, as those movements are to competitively served plants. This may have been a reasonable design choice under MSP, which over-allocated revenue to the SARR. But under ATC, WFA might not have included all that traffic or might have changed the configuration of the LRR.

Accordingly, WFA should inform the Board, within 30 days of the service date of this decision, if it wishes to supplement or revise its SAC presentation. WFA may increase or decrease the traffic group, change the configuration of the LRR, and submit evidence on all related issues (such as the revenue from new traffic or construction costs avoided or added due to a new configuration). However, neither party will be allowed to use this reopening of the record to relitigate unrelated issues (such as how to account for non-SARR traffic at the PRB mines).²⁸ If WFA elects to pursue this option, it should suggest an appropriate procedural schedule. If WFA does not seek to present new SAC evidence, we will discontinue this proceeding.

This decision will not significantly affect the quality of the human environment or the conservation of energy resources.

²⁷ BNSF Ry. v. STB, 453 F.3d 473, 484 (D.C. Cir. 2006).

²⁸ Parties should use the 20-day reconsideration period to identify technical or substantive errors in this decision based on the record developed to date. This 20-day deadline is not stayed pending possible supplemental evidence from WFA.

It is ordered:

1. BNSF's motion to strike and request to submit limited sur-rebuttal is denied.
2. The unreasonable practice allegations are dismissed.
3. WFA shall advise the Board within 30 days of the service of this decision whether they wish to submit supplemental SAC evidence.
4. This decision is effective on October 10, 2007.

By the Board, Chairman Nottingham, Vice Chairman Buttrey, and Commissioner Mulvey.

Vernon A. Williams
Secretary

APPENDIX A—LRR CONFIGURATION

As shown in the following schematic, the LRR, which would replicate a portion of BNSF's operating division known as the Powder River Division, would be almost 220 miles long. The LRR route would lie primarily within the PRB, extending from Eagle Butte Junction, WY, on the north, to Guernsey and Moba Junction, WY, on the south. The LRR would transport only coal, moving from LRR-served PRB mines to one locally served power plant – WFA's Laramie River Generating Station (LRS), situated near Wheatland, WY – and five points of interchange with BNSF.

The LRR's main line would start at Donkey Creek, WY, and proceed south to East Guernsey, WY, replicating BNSF's Orin and Canyon Subdivisions. A branch line serving LRS would connect with the LRR's main line at Wendover, WY. The following map illustrates the LRR route.



A. Route Miles

The parties' estimates of the LRR route miles differ by 1.58 miles. In its opening, WFA calculated a total of 217.92 route miles, for the LRR, based on BNSF track charts provided in discovery.²⁹ BNSF argues that the LRR would need a total of 219.53 route miles.³⁰ On rebuttal, WFA agreed with one of BNSF's additions (adding 0.03 route miles), but not with BNSF's three other additions.³¹ We discuss the three disputed areas.

First, BNSF would add a second southerly lead track for the North Antelope/Rochelle mine at Nacco Wye Junction, increasing the route mileage by 1.24 miles. BNSF argues that two south leads are required for efficient loading operations at the North Antelope/Rochelle Mine, particularly when UP and residual-BNSF trains are taken into account.³² However, as WFA notes, BNSF did not include this segment in its RTC model simulation and the simulation showed that trains would be able to operate out of the North Antelope/Rochelle Mine without this additional lead track.³³ Because BNSF's claim is contradicted by its own evidence, we do not include the additional 1.24 miles of lead track that BNSF proposed.

Second, because WFA did not include any mine tracks at the Fort Union mine, BNSF would add a 0.16-mile lead track for the Fort Union mine (replicating the BNSF-owned portion of the real-world Fort Union Mine lead track).³⁴ However, WFA points out that the LRR's traffic group would not include any coal traffic originating at the Fort Union mine.³⁵ WFA states that it inadvertently included a turnout from the Campbell Branch main track to the Fort Union mine lead in its opening configuration, which presumably led BNSF to add a lead track for this mine. On rebuttal WFA removed the turnout. Because the LRR would not actually originate any traffic at Fort Union mine, we find that there is no need to include the lead track proposed by BNSF.

Third, BNSF noted that WFA included 0.45 route miles for the east leg of the Campbell wye (on the Campbell Branch), but only 0.27 route miles for the west leg, even though the curves of the east and west legs of the wye are similar. BNSF therefore would add an additional 0.18 miles to the west leg of the Campbell wye.³⁶ On rebuttal, WFA explained that the original

²⁹ WFA Open. Narr. III-B-1 & WP. 3866-3924.

³⁰ BNSF Reply Narr. III-B-1-4.

³¹ WFA Reb. Narr. III-B-2.

³² BNSF Reply e-WP. "n antelope mine routing percentages.xls."

³³ See BNSF Reply Narr. III-B-46 n.97 ("Mr. Wheeler coded his RTC Model simulation to bring trains using this second lead in and out of the mine at a point above the lead. Therefore, it was not necessary to physically build the second lead for the RTC Model simulation.").

³⁴ BNSF Reply Narr. III-B-2.

³⁵ WFA Reb. Narr. III-B-4.

³⁶ BNSF Reply Narr. III-B-5.

0.27-mile length for the west leg of the wye was based on BNSF's workpapers.³⁷ Because WFA properly relied on information provided by BNSF in discovery, we reject BNSF's proposed addition to the route miles.

Accordingly, we use WFA's rebuttal figure of 217.95 route miles for the LRR.

B. Track Miles

Although BNSF has accepted WFA's proposed LRR track configuration, including main line and branch line configuration, interchange point configuration, and the basic track configuration for all of the LRR's yards, there is a difference of 15.82 track miles between the figures used by the parties. The main difference (13.59 track miles) involves set-out track.³⁸ BNSF would increase the length of the set-out tracks as well as add new set-outs at the Dragging Equipment Detectors (DEDs) that BNSF argues would be needed if the LRR were to use concrete ties, as BNSF advocates, on the LRR rather than the wood ties proposed by WFA.

As discussed in **Appendix D—Road Property Investment, Section C. Track Construction**, we agree with BNSF that the length of the LRR's set-out tracks must be increased (from 860 feet to 925 feet) due to a WFA miscalculation regarding No. 10 turnouts on 25-foot track centers. However, we agree with WFA that no set-out track needs to be increased to 2,000 feet to store MOW equipment. And because we find concrete ties unnecessary, no additional set-out tracks would be needed for the DEDs that concrete ties would require.

The only issue concerning yard track miles relates to tracks for the locomotive maintenance facility at Guernsey. BNSF would change the track configuration for the Guernsey Yard locomotive shop and add 0.68 miles of track outside of the shop "for holding inbound and outbound locomotives prior to entering and after leaving the shop."³⁹ As discussed in **Appendix D**, BNSF has failed to show that the 0.68 of track at the Guernsey locomotive shop would be necessary, but we include 0.05 miles of lay-up track at the shop.

There is also a discrepancy of 0.2 miles in the parties' calculation of total main track miles. This is due to differing connection points for passing sidings or second main tracks. Since the parties agreed to use WFA's RTC-tested track configuration, we will use WFA's track miles.

Finally, the parties' disagreements over route miles lead to a difference of 1.43 in track miles. Because we do not accept BNSF's additional route miles, as discussed above, we do not accept the corresponding additional track miles.

Table A-1 shows our restatement of the LRR's total number of route miles and track miles.

³⁷ WFA Reb. Narr. III-B-5; WFA Open. WP. 3895.

³⁸ BNSF Reply Narr. III-B-6, Table III-B-2; WFA Reb. Narr. III-B-9-19.

³⁹ See BNSF Reply Narr. III-B-5 & III-B-49.

Table A-1

LRR Route Miles			
Type of Track	WFA	BNSF	STB
Main Lines	171.27	171.27	171.27
Branch Lines	43.09	43.27	43.09
Mine Spurs	3.59	4.99	3.59
TOTAL	217.95	219.53	217.95
LRR Track Miles			
Type of Track	WFA	BNSF	STB
Main Track	386.17	386.37	386.17
Mine Spurs	3.59	4.99	3.59
Setout, Interchange & Helper Track	14.90	28.49	15.24
Yard Track	41.75	42.38	41.75
TOTAL	446.41	462.23	446.75

APPENDIX B—TRAFFIC VOLUMES AND REVENUES

This appendix addresses the amount of total traffic (both coal and non-coal) that the LRR would transport, and the total revenues that traffic is expected to generate over the 20-year SAC analysis period, i.e., from 2004 (4Q) through 2023 (3Q).

A. Tonnage

The parties have agreed on the traffic group to be served by the LRR, the base-year volumes for that traffic (with one exception), and the index to be used to project traffic volumes for the years 2004 (4Q) and 2005 and for the years 2010 to 2023 (3Q). The parties disagree on two issues affecting projected traffic volumes: (1) the appropriate procedure for forecasting tonnages for 2006-2009; and (2) the amount of the traffic destined to the Wood River Plant at Sauget, IL. These issues are discussed below.

1. Forecast Procedures for 2006-2009

For years 2004 (4Q) and 2005 and the years 2010 through 2023 (3Q), the parties have agreed to use EIA tonnage forecasts for the PRB for their year-to-year percentage changes in coal traffic, in conformity with recent Board precedent. See Xcel at 53-54. BNSF, however, argues that we should use an internal BNSF system-wide coal forecast to adjust LRR traffic volumes for years 2006 through 2009. The Board has rejected the use of similar system-wide forecasts that were not specific to the traffic that the SARR would carry. Id. at 53. Because BNSF has failed to justify a departure from that precedent, we use the EIA tonnage forecasts for the 2006-2009 period. We also update the EIA tonnage forecast for 2004 (4Q) through 2023 (3Q) using the 2006 EIA forecast.

2. Wood River Plant Forecast

The parties do not agree on the tonnage of traffic destined to the Wood River plant at Sauget, IL. WFA based its tonnage figure for this traffic on the tonnage delivered to the plant in 2004, including 433,519 tons that WFA claims was delivered to the plant via barge.⁴⁰ WFA applied its forecast procedures, but capped the tonnage at the level needed to operate at 85% of the plant's capacity, which it calculated as 2,029,000 tons annually.⁴¹

BNSF argues that WFA erred in its calculations by mixing tonnage forecasts for direct movements to the plant in 2004 with movements via transloading in 2005,⁴² rather than using tonnages for the same year. BNSF states that this error produced an annual delivery total for the

⁴⁰ See WFA Open. e-WP. "LRR Traffic and Revenues_WFABasinOpening.xls;" see also WFA Reb. e-WP. "LRR Traffic and Revenues_WFA Basin Rebuttal.xls", sheet ProjTonRev.

⁴¹ See WFA Reb. III-A-16.

⁴² See WFA Open. e-WP. "LRR Traffic and Revenues_WFABasinOpening.xls," worksheet "ProjTonRev."

plant that exceeded the combined traffic forecast to Wood River in either year.⁴³ In an attempt to remedy the error, BNSF capped this traffic at its projected 2005 levels.⁴⁴

BNSF is correct that, by combining actual data from the base-year 1-3Q period with forecast for 4Q deliveries, WFA counted certain deliveries twice, because they were included in both BNSF's 4Q forecast and WFA's 1-3Q actual deliveries. Moreover, based on WFA's 100% plant capacity (2,081,000 tons), WFA's evidence of Wood River deliveries would require the plant to run at 98% capacity, which would substantially exceed its intended 85% plant capacity cap. WFA has failed to explain this double counting of deliveries or how the Wood River plant could maintain 98% plant capacity.

Although BNSF's figure for Wood River deliveries would have the plant running at approximately 93% capacity, it is the best evidence of record, and, because neither party provided actual deliveries to Wood River for a full year, we use BNSF's evidence. Thus, we use a maximum tonnage figure for Wood River of 1.932 million tons.

While EIA has released a more recent forecast in February 2007, we will continue to use the EIA's 2006 Annual Energy Outlook that the parties used to model the capacity needs and operating expenses of the SARR. These forecasts are for 2004-2023 low-sulfur sub-bituminous coal tonnage and transportation rates for "Western Montana & Wyoming PRB" and "Western Wyoming." Forecasts are continually shifting, and implementing changes to forecasts, particularly volume forecasts, can be burdensome and could necessitate reconfiguration of the network and a new operating model. Accordingly, we will revise a forecast only if we see a significant change between the forecasts in the record and those publicly available from EIA. See Xcel at 53. In this case, as shown below, there was no significant change between the EIA's 2006 forecast and its 2007 forecast.

⁴³ See BNSF Reply at III-A-20.

⁴⁴ See BNSF Reply e-WP. LRR Traffic and Revenues_WFABasinOpening_BNSF Revised.xls," worksheet "ProjTonRev."

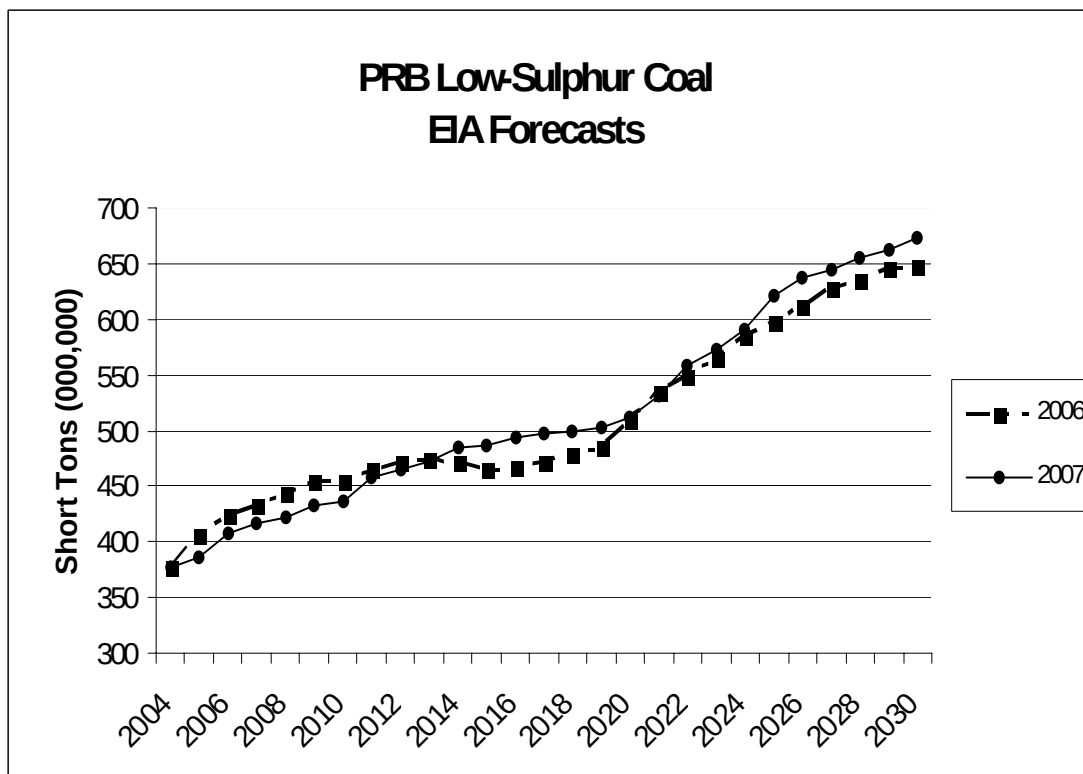


Table B-1 sets forth the total tonnage figures of the parties, for both coal and non-coal traffic, and the Board's findings here.

Table B-1
Tonnage Forecasts

	WFA	BNSF	STB
2004 (4Q)	48.4	48.4	48.4
2005	205.3	205.3	205.3
2006	207.5	207.8	210.2
2007	208.7	206.6	209.5
2008	210.3	206.9	210.3
2009	212.9	208.0	212.0
2010	213.8	209.3	212.0
2011	214.9	210.9	213.2
2012	215.7	212.0	213.8
2013	216.1	212.6	214.0
2014	216.3	212.9	213.5
2015	216.7	213.5	209.7
2016	217.0	213.8	210.6
2017	217.2	214.2	213.3
2018	217.6	214.8	214.6
2019	218.4	215.6	215.0
2020	218.5	215.8	216.6
2021	218.7	216.2	217.9
2022	219.0	216.7	218.5
2023	219.4	217.3	219.1
2024 (1Q-3Q)	164.9	163.4	164.8

B. Revenue

For the reasons discussed in the body of this decision, we will use the ATC approach to determine the cross-over revenues attributable to LRR, as adopted in Major Issues, slip op. at 36, and implemented in Second Compliance Order, slip op. at 3. And as we are using EIA volume forecasts, we apply the corresponding revenue forecasts to produce internally consistent forecasting results. See Xcel at 55 (“[W]here EIA tonnage forecasts are used it is preferable to use matching EIA rate forecasts as well. This provides a single, consistent, and independent source for the coal rate and tonnage projections.”).

The remaining dispute involves the revenue forecast for the issue movements. BNSF used the rate information set forth in the challenged tariff, while WFA took the base-year rate and indexed it for inflation. In this fashion, WFA ignored the structured rate increases BNSF included to phase in a rate increase over a 3-year period. WFA argues that its change is justified because BNSF is using an unreasonable method to increase the challenged rate. As discussed in the body of this decision, we find no merit to that claim. Moreover, as the objective here is to determine the amount of revenue BSNF will earn from the traffic group, we must use the actual

rates it intends to collect. Accordingly, we use BNSF's evidence on the revenues from the issue movements.

Table B-2 presents the parties' positions on the total revenues that the traffic group is expected to generate over the 20-year analysis period and the Board's findings. For comparison purposes, we have adjusted both parties' revenue evidence to conform to the traffic group and volume levels we have selected. For BNSF, we present the contestable market allocation method it advocated, under which the revenue from cross-over traffic would be limited to the URCS variable cost of the portion of the movement over the facilities replicated by the SARR. We have restated those revenue allocations to comport with the variable cost evidence submitted by BNSF in its supplemental evidence. The revenue figures presented by WFA are based on MSP, and the STB's revenue figures are based on ATC, as refined and implemented in the body of this decision.

Table B-2
Revenue Forecasts
(\$ in millions)

	WFA	BNSF	STB
2004 (4Q)	\$76.6	\$44	\$51.9
2005	329.3	141	218.4
2006	339.4	199	229.2
2007	347.1	200	230.9
2008	354.7	201	231.7
2009	368.6	208	238.2
2010	376.6	210	240.5
2011	385.4	214	245.0
2012	394.1	218	250.1
2013	402.4	223	255.7
2014	409.8	227	259.9
2015	419.5	226	259.3
2016	427.3	232	266.0
2017	436.0	241	276.1
2018	446.3	250	286.2
2019	460.8	257	294.2
2020	471.5	265	303.6
2021	482.8	274	313.6
2022	496.2	281	321.7
2023	512.8	289	330.6
2024 (1Q-3Q)	397.2	223	255.3

APPENDIX C—OPERATING EXPENSES

This appendix addresses the annual operating expenses that would be incurred by the LRR. The manner in which a railroad operates and the amount of traffic it handles are the major determinants of the expenses a railroad incurs in its day-to-day operations. As discussed in the body of the decision, we use WFA’s proposed operating plan for the LRR here. Accordingly, except as specifically discussed, we use WFA’s operating assumptions to determine the level of operational resources the LRR would need for a given level of traffic. **Table C-1** summarizes the operating cost estimates reflected in the parties’ evidence and the figures used by the Board.

Table C-1
LRR Operating Costs
(\$ millions)

	WFA	BNSF	STB
Train & Engine Personnel	17.5	27.1	26.9
Locomotive Lease	11.6	14.5	12.2
Locomotive Maintenance	11.2	12.4	11.5
Locomotive Operations	26.6	37.6	32.9
Railcar Lease	3.5	5.7	4.6
Materials & Supply Operating	1.1	1.6	1.1
Ad Valorem Tax	1.4	1.4	1.4
Operating Managers	9.6	11.8	11.3
General & Administrative	15.0	25.2	14.2
Loss & Damage	0.04	0.04	0.04
Maintenance-of-Way	10.1	19.8	16.5
Insurance	3.9	6.7	4.2
Startup and Training	7.1	11.5	8.7
TOTAL	111.5	163.8	145.6

A. Locomotives

1. Locomotive Requirements

Locomotive requirements are primarily determined by how the LRR would operate. WFA would have the LRR use SD70MAC locomotives for coal service and SD40-2 locomotives for helpers, switching, and work trains.⁴⁵ BNSF agrees with WFA’s selection of locomotive types,⁴⁶ but there is a substantial difference in the number of locomotives each party assumes the

⁴⁵ WFA Open. Narr. III-C-8; WFA Reb. Narr. III-C-9.

⁴⁶ BNSF Reply Narr. III.C-7.

LRR would need. The difference is attributable to two factors: (a) how to annualize the peak-week operating statistics to estimate the annual operating statistics; and (b) the number of extra locomotives needed to handle peak-week demands (the “peaking factor”). Our resolution of these issues is discussed below.

a. Annualizing WFA’s Peak-Week Analysis

Both parties modeled only the peak week of the LRR’s operations, rather than an entire year’s operations. It is therefore necessary to develop the annual operating expenses for the peak year from the peak-week analysis. The parties used different annualizing methods. Using transit times from its operating plan, WFA first developed operating statistics for the peak-week trains and then estimated the peak-year statistics by multiplying the peak-week statistics by 366 and dividing by 7.⁴⁷

BNSF used a more complex methodology. Also starting with the output of WFA’s operating plan, BNSF developed average transit times between segments of the LRR and then developed total transit times on the SARR by adding the transit time for each segment the train would traverse, plus time spent in yards and loading/unloading times.⁴⁸ In this fashion, BNSF developed transit times for all trains moving in the peak year, even if there were no comparable trains moving during the peak week.⁴⁹

WFA’s approach risks substantially over- or understating the annual operating statistics if the peak-week traffic mix is not representative of the annual traffic. See Otter Tail at C-2. For example, if during the peak week, the LRR were to serve a mix of traffic that is predominantly less expensive to service (e.g., the short-haul southbound PRB traffic) than the overall traffic mix throughout the year, then simply multiplying the peak week operating statistics by 366 and dividing by 7 would not accurately reflect the annual operating expenses. BNSF’s approach is more precise, as it relies on the actual traffic forecast for that year. It is also the approach used by the Board in recent SAC cases. Thus, even though we use WFA’s operating plan, we use BNSF’s more precise method for annualizing expenses.

b. Peaking Factor and Spare Margin

Locomotive requirements are calculated based on the estimated number of annual train starts. However, the LRR would need enough locomotives to handle the ebbs and flows of its traffic group. The need for a “peaking factor,” to assure that the SARR would have sufficient locomotives to handle the peak demands of the traffic group, was established in TMPA.⁵⁰ In its opening evidence, WFA used two separate methodologies to calculate the peaking factor. First, WFA calculated the locomotive requirements by annualizing peak-week locomotive hours from

⁴⁷ WFA Open. Narr. III-C-15.

⁴⁸ BNSF Reply Narr. III.C-9-10.

⁴⁹ Id.

⁵⁰ See TMPA at 81.

its RTC analysis.⁵¹ WFA argues that it is not necessary to apply a separate peaking factor to this calculation, as it is extrapolated from the LRR's peak week.⁵² WFA's second calculation used the methodology applied by the Board in Xcel Recons,⁵³ which produced a peaking factor of 14.3% and resulted in a total requirement of 105 locomotives in the peak year—the same number of locomotives required under its first methodology.⁵⁴ BNSF, which followed the Board's Xcel Recons methodology, argues that WFA failed to use the correct number of peak-week trains to calculate the peaking factor.⁵⁵

WFA's alternate methodology is not appropriate, because there may be movements with higher locomotive requirements that do not appear in the peak week, and WFA's annualizing of peak-week requirements would consequently not include sufficient locomotives for these occasions. While this methodology may reach the same result in this case, we see no reason to depart from the methodology used in Xcel Recons. Under that methodology and using BNSF's annualizing method, as discussed above, we calculate a peaking factor of 17.7% for the SD70MAC locomotives. While additional evidence and further development might lead the Board to reconsider this approach in the future, WFA has not in this case met its burden of justifying a departure from our established precedent. We will therefore adhere to Board precedent and include a peaking factor sufficient to guarantee that the LRR would have enough locomotives on hand to handle peak demand.

Because locomotives would not be available 100% of the time, additional spare locomotives would be needed. We apply the agreed-upon spare margins of 8.6% for SD70MAC locomotives and 0% for SD-40-2 locomotives.⁵⁶

c. Total Locomotive Requirement

Using the peak-week operating statistics and spare margins developed by WFA's operating plan, BNSF's method for annualizing those operating statistics, and the peaking factor noted above, we compute the following peak-year locomotive requirements.

⁵¹ WFA Open. Narr. III-C-14-15.

⁵² WFA Reb. Narr. III-C-10-11.

⁵³ WFA Open. Narr. III-C-15-16.

⁵⁴ Id.

⁵⁵ BNSF Reply Narr. III.C-10-11.

⁵⁶ WFA Open. Narr. III-C-13; BNSF Reply Narr. III.C-11.

Table C-2
Total Locomotive Requirements

	WFA	BNSF	STB
Road – SD70MAC	105	121	104
Helper/Switch/Work – SD40-2	13	13	13
Total	118	134	117

d. Leasing

WFA assumes that the LRR would lease its locomotives.⁵⁷ BNSF does not contest the annual lease costs used by WFA for both the SD70MAC and the SD40-2 locomotives.⁵⁸ We therefore use WFA's evidence.

2. Locomotive Maintenance Expense

Locomotive maintenance expenses consist of two types of costs: those based on the annual number of locomotive unit-miles (LUM) and those based on periodic overhauls of each locomotive. The parties agreed on the per-LUM costs for the SD70MAC and SD40-2 locomotives,⁵⁹ which we apply to our restated LUM calculations, discussed infra. The parties disagree on the costs to overhaul locomotives.

a. SD70MAC Locomotives

WFA estimated the annual expense to overhaul SD70MAC locomotives based on an overhaul contract produced by BNSF in discovery.⁶⁰ BNSF argues that the estimate used by WFA did not include the cost of complying with the Environmental Protection Agency's (EPA) emissions regulations or the increased cost of a locomotive's second overhaul.⁶¹ BNSF would therefore increase this expense, based on invoice data.⁶² On rebuttal, WFA agreed to include the cost of EPA emissions kits, but only for the first overhaul.⁶³ Because we agree that the cost of complying with EPA emissions regulations would be a one-time expense, we use WFA's

⁵⁷ WFA Open. Narr. III-D-4.

⁵⁸ BNSF Reply Narr. III.D-1.

⁵⁹ WFA Open. Narr. III-D-5-6; BNSF Reply Narr. III.D-2-4.

⁶⁰ WFA Open. Narr. III-D-5-6.

⁶¹ BNSF Reply Narr. III.D-2-4.

⁶² BNSF Reply Narr. III.D-3.

⁶³ WFA Reb. Narr. III-D-8.

evidence on this as the best evidence of record, including its development of a weighted average locomotive annuity payment for SD70MAC overhauls for use in the DCF calculations.⁶⁴

The parties agree on the labor component of SD70MAC overhauls, but not the material costs.⁶⁵ In calculating material costs, BNSF evidently relied on invoices that were not provided to WFA in discovery.⁶⁶ We agree with WFA that BNSF should not be permitted to base its evidence on invoices that were requested in discovery but not made available to WFA. Accordingly, we use the contract price for overhaul materials shown by WFA.

b. SD40-2 Locomotives

WFA contends that the periodic overhaul of the SD40-2 locomotives used in switch and work train service is included in the maintenance cost per LUM pursuant to the maintenance contract.⁶⁷ BNSF agrees, but would add a cost for environmental upgrading required by EPA regulations of all new locomotives.⁶⁸ WFA argues that this is not a recurring expense but a one-time cost at the time of the first overhaul, and that nearly all the locomotives under the lease the parties relied on for SD40 locomotives were manufactured prior to 1973 and would therefore be exempt from the EPA emissions standards.⁶⁹

The SD40-2 locomotives acquired by the LRR would most likely not be as old as those in the lease upon which WFA relies. Rather, they would likely be subject to the EPA requirements. Accordingly, we use BNSF's evidence as the best evidence of record.

3. Locomotive Operating Expense

a. Fuel Expenses

Fuel costs are comprised of two components: the fuel consumption rate per LUM and the fuel cost per gallon. The parties do not agree on either component here.

i. Fuel Consumption

WFA developed a fuel consumption rate for each train from BNSF's R-1 system-average fuel expenses for these types of locomotives.⁷⁰ BNSF argues, however, that because coal trains are long and heavy, they travel over difficult terrain, and the empty trains face substantial wind resistance, LRR trains would consume fuel at a higher rate than the average for BNSF's entire

⁶⁴ WFA Reb. Narr. III-D-8-10.

⁶⁵ WFA Reb. Narr. III -D-9.

⁶⁶ Id.

⁶⁷ WFA Reb. Narr. III-D-10.

⁶⁸ BNSF Reply Narr. III.D-2.

⁶⁹ WFA Reb. Narr. III-D-10-11.

⁷⁰ WFA Open. Narr. III-D-12.

fleet.⁷¹ BNSF conducted a special study to calculate fuel consumption using event recorder data.⁷²

WFA objects to BNSF's reliance on this special study for several reasons. First, WFA states that BNSF failed to produce the underlying data and computer programs needed to evaluate the study results, as the Board has required in previous cases.⁷³ See TMPA at 41; Xcel at 122. WFA also maintains that BNSF used a different procedure than BNSF used to download event recorder data in other SAC cases, and that this fuel consumption study is fatally flawed.⁷⁴ Finally, WFA argues that BNSF has not shown that the sample used in the study is representative of what the LRR's fuel consumption would be.⁷⁵

In the prior cases where the Board has accepted fuel consumption studies using event recorder data, the parties have agreed on the study parameters, the defendant railroad has provided to the complainant shipper and the Board the raw event recorder data for review and analysis, and the railroad has provided the computer program it used in performing its study. See TMPA at 60; Xcel at 137. Because BNSF's fuel consumption study here is not sufficiently supported, we use WFA's evidence on fuel consumption rates.

ii. Fuel Costs

Both parties agree that most fueling would be done at the Guernsey Yard facility,⁷⁶ with two exceptions. Locomotives on trains interchanged with the residual BNSF at locations other than Guernsey would be fueled by the residual BNSF, with the LRR paying the residual BNSF for fuel on a proportionate per-LUM basis, and locomotives on local LRR trains would be fueled in DTL service at the power plant.⁷⁷

WFA based the LRR's locomotive fuel costs on BNSF's average cost per gallon of diesel fuel (including handling, taxes, and hedge effects).⁷⁸ BNSF would have us use its actual cost to obtain fuel at Guernsey Yard in the fourth quarter of 2004, which is substantially higher than its system-average fuel price.⁷⁹ WFA maintains that the LRR could obtain its fuel at a lower cost, because it would be able to obtain all of its Guernsey diesel fuel requirements by pipeline, which would eliminate the inefficient and more expensive use of tank cars to transport fuel.⁸⁰ WFA

⁷¹ BNSF Reply Narr. III.D-12-13.

⁷² BNSF Reply Narr. III.D-13-16.

⁷³ WFA Reply Narr. Exh. II-A-1 at 3.

⁷⁴ WFA Reply Narr. Exh. II-A-I at 3-8; WFA Reb. Narr. Exh. II-A-2 at 12.

⁷⁵ WFA Reply Narr. Exh. II-A-I at 6-7.

⁷⁶ WFA Open. Narr. III-D-7; BNSF Reply III.D-6.

⁷⁷ WFA Reb. Narr. III-D-12; BNSF Reply III.D-6.

⁷⁸ WFA Open. Narr. III-D-7; WFA Reb. Narr. III-D-13.

⁷⁹ BNSF Reply Narr. III.D-7-9.

⁸⁰ WFA Open. Narr. III-D-8.

also argues that BNSF's fuel price data do not reflect the cost savings resulting from BNSF's hedging program.⁸¹

We believe BNSF's site-specific costs for fuel more accurately reflects the marketplace. It is highly unlikely that the LRR's market power with regard to fuel suppliers would be better than BNSF's such that the LRR could negotiate lower prices or improved deliveries via pipeline, given the LRR's lower overall demand. And WFA's reliance on the residual BNSF for fueling at off-line points would require that the LRR compensate BNSF for its actual cost of fueling at those points. Fuel cost hedging would not result in a uniform reduction of costs. Rather, hedging results in a rise and fall of costs based on the market's fluctuations and the skill of the hedgers. Thus, to use a single year's hedging results for long-term forecasting of fuel costs is unrealistic. For all of these reasons, we use the site-specific costs supplied by BNSF.

b. Servicing

The parties both relied on BNSF's R-1 figures to determine the costs associated with servicing locomotives (which includes the costs of adding lube oil and sand).⁸² BNSF agreed with the cost per LUM figure used by WFA for servicing locomotives (\$0.0701 per LUM), but argued for a separate LUMs-based servicing cost for switch and work locomotives.⁸³ WFA has agreed to a separate servicing cost for switch locomotives, but it argues that work train locomotives do not have the same operational characteristics as switch locomotives and that their servicing more closely resembles road unit servicing.⁸⁴

We agree that it is more appropriate to use the road unit servicing cost for work train locomotives, because work trains operate mainly over line of road and that servicing them most closely resembles road unit servicing.

B. Railcars

There is a substantial difference in the parties' estimates for the number of railcars that the LRR would need and the costs of acquiring those cars.

1. Railcar Requirements

Because WFA's operating plan is used here, that plan is used to estimate the number of coal cars that would be used. However, the parties disagree on the number of cars that the LRR would need to provide. WFA analyzed BNSF's rail transportation contracts and, when the contract requires the shipper to provide all or a portion of the railcars used in its movement, WFA excluded that number of cars from its estimate.⁸⁵ BNSF argues that WFA has

⁸¹ WFA Reb. Narr. III-D-16-17.

⁸² WFA Open. Narr. III-D-7; BNSF Reply Narr. III.D-5.

⁸³ WFA Open. Narr. III-D-7; BNSF Reply Narr. III.D-5-6.

⁸⁴ WFA Reb. Narr. III-D-11.

⁸⁵ WFA Open. Narr. III-C-23.

underestimated the number of railcars the LRR would need to supply. BNSF relied on its traffic tapes as a historic record of which party provided the cars for each movement.⁸⁶ BNSF then identified additional cars for which it argues the LRR would be responsible, and adjusted its figures accordingly.⁸⁷

WFA maintains that BNSF's analysis fails to recognize the "swap" agreements that BNSF has entered into with several shippers, which allow BNSF to use shipper-provided cars in other service as long as BNSF supplies cars for the service covered by the contract.⁸⁸ WFA also disagrees with BNSF's assignment of partial car supply responsibility to the LRR for destinations where fewer than 30% of cars were provided by BNSF; WFA argues that the contracts alone should determine who is responsible for providing cars.⁸⁹

We agree that, where transportation contracts are in force, they should determine who has responsibility for supplying railcars. Therefore, we calculate the required car fleet based primarily on WFA's analysis. But in those cases where the traffic tapes show that railroad-provided cars are dominant, we add those flows to the LRR fleet requirement. We do not include cars that are part of movements with a very small percentage of railroad-provided cars, because those cars could have been used for operational convenience and are more properly considered "peaking factor" cars.

2. Railcar Spare Margin and Peaking Factor

Because of maintenance considerations, cars would not be available at all times, and thus the LRR would need additional cars to serve as spares. WFA assumed that the LRR would need a 5% spare margin, while BNSF assumed a 10% spare margin based on the Board's findings in prior SAC cases.⁹⁰ BNSF argues that a 10% spare margin is reasonable, as it more closely approximates the spare margin WFA used for its own railcar fleet for the LRS service.⁹¹

The Board's use of a 10% spare margin in Xcel was due to the shipper's failure to offer evidence to support its 5% figure. Xcel at 61. Here, in contrast, WFA has supported its 5% figure by reference to the spare margins in several BNSF transportation contracts.⁹² BNSF asserts that WFA relied on a selective review of shipper contracts, but BNSF has not shown that a more representative sampling would produce a higher spare margin. Thus, as in Otter Tail (at C-5), we use a 5% rail car spare margin.

WFA did not apply a peaking factor for railcars. BNSF argues that we should apply to railcars the same peaking factor used for locomotives, because railcars are subject to the same

⁸⁶ BNSF Reply Narr. III.C-13-14.

⁸⁷ BNSF Reply Narr. III.C-14-16.

⁸⁸ WFA Reb. Narr. III-C-20-22.

⁸⁹ WFA Reb. Narr. III-C-22-24.

⁹⁰ WFA Open. Narr. III-D-15; BNSF Reply Narr. III.C-16.

⁹¹ BNSF Reply Narr. III.C-16.

⁹² WFA Reb. Narr. III-C-18-19.

fluctuations as locomotives.⁹³ We agree, and we apply that peaking factor to the base number for railcars, as augmented by the WFA spare margin.

3. Railcar Lease Expense, Private Car Allowance, and Maintenance Expense

The parties agree on railcar lease expenses and agree that the LRR would not pay private car allowances, but they disagree on the railcar maintenance expense. WFA did not include a separate maintenance cost for railcars, maintaining that such costs are included in the full-service car leases that would be used to acquire the cars.⁹⁴ BNSF asserted that WFA should add a user car repair cost of \$0.0035 per mile to cover costs that are the user's responsibility under the lease contract.⁹⁵ WFA agrees, but argues that this user car repair cost should apply only to shipper-owned cars, not to system cars, because this cost historically has been applied only to foreign and shipper-provided cars.⁹⁶ We agree and, as in Xcel (at 61), we apply the user car repair cost only to shipper-owned cars.

C. Train Crew Personnel

There is a substantial difference in the parties' estimates of the number of train and engine (T&E) personnel that the LRR would need. The parties agree that train crews could work 270 shifts per year, but they disagree on the total number of crew starts the LRR would require, the number of switch crew personnel, and the number of work train crew personnel.

1. Crew Starts

The parties used a similar methodology to calculate the crews required for each train, but they disagree on how to match the train crews working on arriving empty trains with departing loaded trains at the three mine groups (turn crews).

WFA estimated a significantly longer total crew time by assuming that crews could pick up another train at the same or a nearby mine and return, which would result in a very high matching of crews from arriving empty trains and departing loaded trains.⁹⁷ WFA asserts that, even if another train were not available for a turn crew, the crew could be rested for at least 4 hours and returned to service with the same train it left at the mine.⁹⁸

BNSF disputes WFA's turn crew calculation. BNSF matched arriving crews with loaded trains at the same mine group within a 4-hour window and excluded matches in which the train

⁹³ BNSF Reply Narr. III.C-16.

⁹⁴ WFA Open. Narr. III-D-15-16.

⁹⁵ BNSF Reply Narr. III.D-17-18.

⁹⁶ WFA Reb. Narr. III-D-23.

⁹⁷ WFA Reb. Narr. III-D-27-32.

⁹⁸ WFA Reb. Narr. III-D-32.

crew would not return in the direction of its origin terminal.⁹⁹ It concluded that 44% of crews delivering empty trains could not return with a loaded train from that mine group.¹⁰⁰

It is not clear that WFA's proposal to rest employees for 4 hours if a loaded train is not immediately available would comply with the Hours of Service Act.¹⁰¹ In any event, given the LRR's high number of annual shifts, it is not reasonable to assume that there would be crew personnel willing to work such extraordinarily long shifts. Accordingly, we find that BNSF's proposed crew requirements are more reasonable, and we use BNSF's evidence as the best evidence of record.

2. Switch Crew Personnel

The parties have agreed that the LRR would use one-person switch crews for the two switching assignments at Guernsey Yard.¹⁰² BNSF apparently erroneously included two-person switch crews in its workpapers, resulting in 11 switch crew employees.¹⁰³ WFA states that only six employees would be required to man two one-person crews around the clock.¹⁰⁴ We use WFA's number as the best evidence of record.

3. Work Train Crew Personnel

WFA did not provide for any specific employees to operate the LRR's work trains, arguing that the LRR would require only 50 work train crew starts, which WFA added to the annual crew-start requirement when calculating T&E personnel requirements.¹⁰⁵ BNSF would have the LRR provide for two crew employees to operate work trains, based on the number of annual work train days determined by its witness.¹⁰⁶ We find that WFA has accounted for sufficient employees to operate work trains in calculating its total T&E personnel.

⁹⁹ BNSF Reply "III D 3 train matching.xls".

¹⁰⁰ BNSF Reply Narr. III.D-21-22.

¹⁰¹ Pursuant to 49 U.S.C. 21103(b) and 49 CFR part 228, an interim period of more than 4 hours rest at a designated terminal is considered time off duty, but WFA has not made any provision for the specific requirements for designated terminals as defined in the regulations. 49 CFR 228 Appendix A.

¹⁰² WFA Reb. Narr. III-D-32; BNSF Reply Narr. III.D-22.

¹⁰³ WFA Reb. Narr. III-D-32.

¹⁰⁴ Id.

¹⁰⁵ WFA Reb. Narr. III-D-32-34.

¹⁰⁶ BNSF Reply Narr. III.D-23.

D. Non-Train Operating Personnel

There is a modest difference in the parties' estimates for the number of non-train operating personnel. **Table C-3** shows the parties' staffing requirements and the figures used by the Board. The one area of dispute is discussed below.

Table C-3
Non-Train Operating Personnel

	WFA	BNSF	STB
Vice President – Transportation	1	1	1
Assistant	1	1	1
Dir/Mgrs Train & Loco. Op.	4	4	4
Asst. Train Managers	11	11	11
Yardmasters	5	5	5
Crew Callers	6	6	6
Crew Haulers	0	8	0
Dispatchers	9	9	9
Dir/Mgr - Operations Control	5	5	5
Dir/Mgr - Safety & Training	2	3	2
Dir/Mgr – Mkting/Customer Service	12	12	12
Vice President – Eng., Mech., & Admin	1	1	1
Assistant	1	1	1
Equip. Inspectors & Welders	62	62	62
TOTAL	120	130	120

Crew Haulers

BNSF would include 8 crew hauler positions to transport train crews that exceed their hours of service.¹⁰⁷ WFA, however, already included an expense for taxi service to ferry relief crews to and from main-line trains.¹⁰⁸ BNSF's staffing proposal is therefore duplicative and unnecessary. Accord Otter Tail at C-7; Xcel at 64.

E. General & Administrative Personnel

The parties' general and administrative (G&A) personnel estimates for the LRR differ substantially. **Table C-4** sets forth the numbers included by each party and the numbers we use here.

¹⁰⁷ BNSF Reply Narr. III.D-19.

¹⁰⁸ WFA Reb. Narr. III-D-25.

**Table C-4
G&A Staffing**

	WFA	BNSF	STB
5-Member Board of Directors			
Outside Directors	3	5	3
President/CEO	1	1	1
Assistants	1	1	1
Director - Corporate Relations	1	1	1
Manager – Operating Rules and Safety	1	1	1
Vice President – Finance Operations	1	1	1
Assistant	1	1	1
Treasurer	1	1	1
Ass't Treasurer	0	1	1
Cash Manager	0	1	1
Controller	1	1	1
Revenue Accounting	1	1	1
Taxes	1	1	1
Financial Reporting	1	2	1
Disbursements	1	1	1
Revenue Analysts/Clerks	3	3	3
Budget and Purchasing	2	3	2
Real Estate	0	1	0
Miscellaneous	0	10	0
General Counsel/VP – Law	1	1	1
Attorneys	2	2	2
Paralegals/Administrative Assist.	1	1	1
Manager - Safety and Claims	1	3	1
Vice President – Human Resources	0	1	0
Director – Human Resources	1	0	1
HR Staff	0	5	0
Vice President – Marketing	0	1	0
Administrative Assistant	0	1	0
Manager - Marketing	2	2	2
Manager - Training	1	1	1
Vice President – Information Technology	0	1	0
Director – IT	1	0	1
Specialists - IT	7	11	7
TOTAL	37	67	39

1. Board of Directors

WFA has proposed a 5-person board of directors for the LRR, with three paid outside board members.¹⁰⁹ BNSF argues for a 7-person board with five paid outside directors.¹¹⁰ In Xcel (at 66) we approved a Board of Directors identical in size and composition to WFA's proposal here. We conclude that WFA's proposal would provide sufficient oversight independent from LRR management. BNSF argues that times have changed and even the smallest railroads now have larger boards. But, as WFA notes, the railroads mentioned by BNSF are publicly traded and thus are subject to more financial-governance scrutiny than the LRR, a privately held company, would be. Therefore, we use WFA's proposed number of outside directors. Accord Otter Tail (at C-8-C-9).

2. Treasurer's Office

WFA provided for only a treasurer, with no assistant treasurer or cash manager.¹¹¹ BNSF argues that an assistant treasurer and cash manager would be needed given the substantial revenues the LRR would receive from the traffic group.¹¹² Based on the evidence presented here, we are not persuaded that a single employee could handle all of the duties of the treasurer's office. Accordingly, we use BNSF's evidence here. See Otter Tail at C-9; Xcel at 67.

3. Controller Operations

Financial Reporting. WFA's proposal for a 1-person staff for financial reporting is feasible and supported,¹¹³ and we use WFA's evidence for this expense. The 2-person staff proposed by BNSF¹¹⁴ would not be necessary, as the LRR would not be a publicly traded corporation and would not need to prepare reports to the SEC or to the equity-investment community.

Budgeting and Purchasing. WFA provided for two employees to maintain these functions, whereas BNSF would provide for three.¹¹⁵ Given the relatively small size and complexity of the LRR, WFA's proposal appears reasonable and we use WFA's evidence here.

Real Estate. WFA argues that the LRR would not need a real estate department, because no property would be bought or sold in the near future.¹¹⁶ BNSF, however, argues that real

¹⁰⁹ WFA Open. Narr. III-D-38; WFA Reb. Narr. III-D-54-56.

¹¹⁰ BNSF Reply Narr. III.D-59.

¹¹¹ WFA Open. Narr. III-D-45-46.

¹¹² BNSF Reply Narr. III.D-76-77.

¹¹³ WFA Open. Narr. III-D-47; WFA Reb. Narr. III-D-67.

¹¹⁴ BNSF Reply Narr. III.D-78.

¹¹⁵ WFA Open. Narr. III-D-47; BNSF Reply Narr. III.D-57; WFA Reb. Narr. III-D-71.

¹¹⁶ WFA Reb. Narr. III-D-72-74.

estate issues would arise from time to time with respect to such matters as grade crossings, licenses, and easements.¹¹⁷ We agree with WFA that few or no real estate issues would be likely to arise, and that it is therefore unnecessary to include dedicated personnel for the real estate function.

Miscellaneous. BNSF would have the LRR employ one disbursement clerk, two senior financial analysts, and seven additional managers and directors in various disciplines, for a total of 10 miscellaneous employees that WFA did not include.¹¹⁸ BNSF has not justified the need for these additional employees, given the small size of the LRR. Therefore, we do not include them.

4. Law Department

The parties agree that the legal department would consist of a Vice President—Law and Administration, two in-house attorneys, and one assistant. The parties disagree, however, on the number of employees to fulfill the safety and claims function. BNSF would employ three different managers/directors to deal with safety and/or claims,¹¹⁹ whereas WFA included only one.¹²⁰ BNSF's proposal is duplicative and unnecessary. Accord FMC at 166. Because WFA's proposal is feasible and supported, we use WFA's staffing levels.

5. Human Resources

To account for human resources needs, WFA would staff the LRR with only a Director of Human Resources, and would outsource the LRR's start-up and training needs.¹²¹ BNSF proposes instead an Assistant Vice-President, an administrative assistant, and four additional managers/directors.¹²² While WFA's proposal for a one-person department might be lean, the five-person, management-heavy Human Resources Department proposed by BNSF is excessive in light of the relatively small size of the LRR. We therefore accept WFA's number as the best evidence of record.

Both parties also include a separate Manager of Training.¹²³ We include that position as well.

6. Marketing Department

An important department for any railroad is marketing. Most of the shippers in the LRR traffic group would ship coal under transportation contracts. Thus, contract administration

¹¹⁷ BNSF Reply Narr. III.D-81.

¹¹⁸ BNSF Reply Narr. III.D-56-58.

¹¹⁹ BNSF Reply Narr. III.D-85-86.

¹²⁰ WFA Open. Narr. III-D-48; WFA Reb. Narr. III-D-75.

¹²¹ WFA Open. Narr. III-D-49; WFA Reb. Narr. III-D-76.

¹²² BNSF Reply Narr. III.D-86-88.

¹²³ WFA Open. Narr. III-D-49; BNSF Reply Narr. III.D-111.

would play a large role in the day-to-day marketing function of the railroad. The LRR's marketing representatives would need to be skilled at understanding highly technical and specialized contracts for the energy market. Customers could seek to renegotiate the terms of contracts before they expire, because of changes to their coal supply requirements or for other reasons. Renewal negotiations would occur for expiring contracts, and the LRR's marketing representatives would need to constantly monitor the coal and energy markets of the utility companies to analyze and respond to offers, make counter-proposals, and negotiate new terms and conditions. The industry trend is towards shorter contract terms, which would increase the importance of the marketing department.

The Board has previously rejected as infeasible attempts to outsource entire marketing departments at nominal cost. See, e.g., Xcel at 67. But the Board has accepted the premise that a SARR serving only a subset of the incumbent railroad's customer base would not need a marketing department as large as that of the incumbent carrier. See Otter Tail at C-11. Here, WFA proposes a three-person marketing department,¹²⁴ headed by a Director of Marketing and Customer Service, who would oversee two marketing managers to assist in contract renewals and day-to-day marketing functions.¹²⁵ BNSF argues that a Vice-President, administrative assistant, and two marketing managers would be more appropriate.¹²⁶ While WFA's proposed staffing level would be lean, it does not appear to be infeasible. Accordingly, we use WFA's proposed marketing department staffing levels. (WFA's Director of Marketing is accounted for in Table C-3, Non-Train Operating Personnel.)

7. Information Technology

WFA proposes to handle the information technology (IT) needs of the LRR with an eight-person IT department (a director and 7 specialists).¹²⁷ BNSF claims that the IT department would be too important not to be overseen by an assistant vice president, and BNSF would have us include 11 specialists.¹²⁸ We recognize the importance of technology to a modern railroad, and WFA has adequately explained how the proposed eight-person IT department would handle LRR's particular IT needs.¹²⁹ WFA's proposal is supported and feasible in light of the relatively small size and limited complexity of the LRR, and BNSF has failed to present persuasive contrary evidence. Accordingly, we use WFA's staffing levels for IT.

¹²⁴ WFA Open. Narr. III-D-42.

¹²⁵ Id.

¹²⁶ BNSF Reply Narr. III.D-65-72.

¹²⁷ WFA Open. Narr. III-D-49.

¹²⁸ BNSF Reply Narr. III.D-89-92.

¹²⁹ WFA Open. Narr. III-D-49-62; WFA Reb. Narr. III-D-82-98.

F. Wages and Salaries

1. Crew Compensation

a. Basic Crew Wages

The parties agree that each LRR train would be manned by an engineer and a conductor, with each crew member working an average of 270 crew shifts per year. Based on BNSF's 2003 Wage Forms A&B, WFA developed a base wage of \$59,517 per T&E crew member.¹³⁰ BNSF disputes the appropriateness of those calculations, arguing that the data relied on by WFA includes the wages for all BNSF engineers and conductors, the majority of whom worked less than 270 shifts per year.¹³¹ BNSF argues that engineers and conductors working the 270 shifts proposed by WFA would require higher compensation, similar to BNSF's practice.¹³² BNSF based its proposed crew wage evidence on a group of BNSF engineers and conductors with annual starts within a range including 270 shifts per year.¹³³

We agree with BNSF that employees working more hours would command more compensation. Because BNSF's calculations are reasonable, we use BNSF's base crew wage estimate here. See Otter Tail at C-11; Xcel at 68.

b. Constructive Allowance

WFA would exclude from the compensation for T&E personnel many of the constructive allowances paid by BNSF as irrelevant to the LRR.¹³⁴ These exclusions include such significant expenses as "special pay differentials" (for activities such as personal and annual leave and military service) and "reduced crew allowances" (additional payments for train crews when the assigned number of employees is not present for a given shift).¹³⁵ WFA sought to justify the exclusions by assuming that the LRR would be a non-union SARR and would always have two employees on each train.¹³⁶ BNSF objects to the exclusion of all the constructive allowances.¹³⁷

As explained in Xcel (at 68), these types of "constructive allowances" are an integral part of the total compensation that BNSF pays its conductors and engineers. Whether that payment is labeled as "salary" or an "allowance," the payment is part of the prevailing market wage that the LRR would have to match to attract and retain train crews. WFA has not demonstrated that a

¹³⁰ WFA Open. Narr. III-D-27.

¹³¹ BNSF Reply Narr. III.D-27-28.

¹³² BNSF Reply Narr. III.D-27-30.

¹³³ BNSF Reply Narr. III.D-30.

¹³⁴ WFA Open. Narr. III-D-27.

¹³⁵ WFA Open. Narr. III-D-28.

¹³⁶ WFA Open. Narr. III-D-28; WFA Reb. Narr. III-D-39.

¹³⁷ BNSF Reply Narr. III-D-25-27.

non-unionized railroad could attract and retain a sufficient workforce without paying these benefits. Accordingly, we use BNSF's evidence on total constructive allowances. Accord Otter Tail at C-11-12; Duke/NS at 75; Xcel at 69.

c. Taxi Expenses

Taxi costs have two components: the number of taxis required and the cost. The number of taxis is determined by, among other things, the need for recrewed. Because we use BNSF's recrewed plan, we use BNSF's approach to developing the number of taxis. The parties also disagree on the unit costs for taxi service. In its opening evidence, WFA developed taxi costs based on the cost agreed to by the parties in Xcel of \$1.00 per mile and an average of 17.7 miles per trip.¹³⁸ BNSF updated WFA's estimated cost to include round-trip miles and to apply the minimum trip cost specified in BNSF's contract with a taxi service provider.¹³⁹ On rebuttal, WFA argued for using all the terms of the BNSF's taxi contract, not just those portions used by BNSF, which WFA argues were selected because they increase BNSF's taxi costs.¹⁴⁰ We agree that the entire contract provides the most accurate cost of providing taxi service in the LRR operating area. We therefore use WFA's rebuttal evidence regarding taxi expenses.

d. Overnight Expenses

The parties agreed on the cost for overnight lodging and meals, but they differ on the number of overnight stays that would be required by train crews.¹⁴¹ The difference is a result of the parties' differing traffic volume and train count estimates. Applying our LUMs and car-mile calculations, we use a cost of \$271,715 for overnights.

2. Executive Compensation

WFA developed the executive-level compensation for the LRR based on the salaries (including bonuses) paid by the Kansas City Southern Railway (KCS) in 2003.¹⁴² WFA would have the LRR pay its President a \$669,873 annual salary, its VP-Finance and Accounting \$281,732, VPs of Transportation, Engineering, and Law \$255,232 each, and its treasurer and controller \$179,674 each.¹⁴³ WFA based the cost for fringe benefits on the ratio of fringe benefits to total wages paid to all freight railroad employees in Wyoming in 2003, as reported by the AAR.¹⁴⁴

¹³⁸ WFA Open. Narr. III-D-32.

¹³⁹ BNSF Reply Narr. III.D-23.

¹⁴⁰ WFA Reb. Narr. III-D-35-38.

¹⁴¹ WFA Open. Narr. III-D-31; BNSF Reply Narr. III.D-23; WFA Reb. Narr. III-D-34.

¹⁴² WFA Open. Narr. III-D 62; WFA Reb. Narr. III-D-98.

¹⁴³ WFA Open. Narr. III-D-63.

¹⁴⁴ WFA Reb. Narr. III-D-98-99.

BNSF argues that WFA failed to include all of the KCS executives' compensation by omitting stock options.¹⁴⁵ BNSF would therefore add \$80,127 to the LRR President's salary, for a total of \$780,000.¹⁴⁶ However, WFA points out on rebuttal that these options were not counted as an expense by the railroad.¹⁴⁷ We agree with WFA that BNSF has not justified this incremental additive to the President's compensation.

For the LRR's vice president positions, WFA based its figure on the KCS vice presidents' compensation where there was an analogous position.¹⁴⁸ Where there was no comparable KCS position, WFA applied the average compensation of all KCS vice presidents.¹⁴⁹ In contrast, BNSF would have us use a blanket figure of \$325,000 for all vice presidents, regardless of position.¹⁵⁰ As the Board has explained, relying upon salaries tied to the duties of a specific position is more reflective of the compensation for an individual job than relying upon a single, one-size-fits-all salary. Duke/NS at 76.

BNSF provided a chart showing the compensation for various executive positions on Class I and shortline railroads.¹⁵¹ This evidence shows a wide range of compensation, and WFA's proposed figures fall within that range, further bolstering WFA's evidence. Because WFA's estimates appear reasonable and are supported, we use WFA's evidence here.

3. Administrative Assistants

The parties disagree on the compensation that executive assistants should receive. WFA used the wage from BNSF's Wage Forms A&B for clerical technicians and specialists (\$47,111).¹⁵² BNSF would have us use the wage for secretaries, stenographers, and typists (\$65,178).¹⁵³ Because BNSF's figure is consistent with precedent and more accurately reflects the level of responsibility of these employees, we use its higher wage figure here. See Otter Tail at C-13; Xcel at 70.

4. G&A and Non-Crew Operating Personnel Compensation

Both parties used BNSF's Wage Forms A&B to develop non-executive G&A and non-crew operating personnel salaries. In many instances, the parties agreed on the appropriate salary, although they used different indexing methodologies. However, the parties classify

¹⁴⁵ BNSF Reply Narr. III.D-106-07.

¹⁴⁶ Id.

¹⁴⁷ WFA Reb. Narr. III-D-100.

¹⁴⁸ WFA Reb. Narr. III-D-100.

¹⁴⁹ Id.

¹⁵⁰ BNSF Reply Narr. III.D-108-09.

¹⁵¹ BNSF Reply Narr. III.D-104-106.

¹⁵² WFA Reb. Narr. III-D-101-02.

¹⁵³ BNSF Reply Narr. III.D-110.

several positions with different compensation levels and labor classes.¹⁵⁴ In general, the labor classes from the Wage Forms A&B selected by WFA appear to reasonably reflect the level of responsibility of the LRR employees. See Otter Tail at C-13. Therefore, we use WFA's figures, with the exception of the Administrative Assistant salaries, discussed above.

5. Travel Expenses

WFA included travel expenses for specific operating and administrative managerial employees, at an annual average expense of \$8,000 per employee, based on an annual survey of corporate travel managers performed by Runzheimer International of the annual cost of corporate travel.¹⁵⁵ BNSF would have us include a much higher travel expense—equal to 5% of total wages and salaries of most employees, and 15% of salary for marketing¹⁵⁶—but the derivation of these estimates is unsupported. WFA's proposal appears feasible, and is supported, as the LRR would be a regional railroad, and it is improbable that nearly every G&A employee would incur reimbursable travel expenses. Moreover, BNSF's estimate appears excessive. Accordingly, we use WFA's travel expenses as the best estimate of the LRR's needs. Accord Otter Tail at C-14.

G. Materials, Supplies, and Equipment

Materials, supplies, and equipment would be needed to support LRR personnel, including such items as motor vehicles, office furniture and equipment, utilities, outside services, IT hardware and software, travel, and training. The parties agree on the unit costs for some of these items, but their aggregate expenses differ due to the difference in their proposed staffing levels. Where that is the case, we have restated the costs to the staffing levels used here. Decisions that are driven by the use of WFA's operating plan need not be addressed separately here. The remaining disputes are discussed below.

1. Vehicles

The parties disagree over the quantity and type of motor vehicles that would be needed. WFA would have the LRR purchase six Ford Explorer SUVs and five Dodge Dakota four-wheel drive pick-up trucks for use by G&A employees.¹⁵⁷ Except for two of the Dakota pick-ups, which would be assigned to the car-inspection crews at Guernsey and Donkey Creek, these vehicles would not be assigned to specific personnel but rather pooled for use by various employees as needed.¹⁵⁸ BNSF would have the LRR purchase 21 Ford Explorers and three Dodge Dakotas for operating managers and would assign vehicles to specific positions.¹⁵⁹

¹⁵⁴ WFA Reb. Narr. III-D-102-04.

¹⁵⁵ WFA Open. Narr. III-D-70; WFA Reb. Narr. III-D-43.

¹⁵⁶ BNSF Reply Narr. III.D-72.

¹⁵⁷ WFA Open. Narr. III-D-64.

¹⁵⁸ Id.

¹⁵⁹ BNSF Reply III.D Operating Expense.xls, worksheet summary.

Although in Otter Tail (at C-14) we used a number for vehicles that is comparable to BNSF's proposal here, the SARR in that case was much larger and had significantly more route miles. Because we find the pool fleet of vehicles proposed by WFA would be adequate for the needs of the LRR, we use WFA's evidence here.

2. Unloading and Inspection Costs

WFA also included in the costs for materials, supplies, and equipment \$379,288 for costs related to the unloading and car inspection services at Laramie River.¹⁶⁰ BNSF argues that WFA's estimate reflects only the costs for a single quarter; BNSF adjusted WFA's figure to reflect BNSF's actual unloading costs for a full year.¹⁶¹ BNSF's adjustment is reasonable, and we use its evidence here.

3. Miscellaneous Costs

BNSF would add \$250,000 for miscellaneous costs, such as janitorial service contracts, landscaping, catering, and other miscellaneous, unplanned operating costs.¹⁶² BNSF states that Wisconsin Central System (WCS) spent approximately \$1.7 million on such expenses in 1999.¹⁶³ WFA argues that the LRR would have no need for the extensive services that BNSF contemplates.¹⁶⁴ While miscellaneous charges would undoubtedly occur, we agree with WFA that BNSF's estimate is too high given the LRR's size and organizational structure. In the absence of better evidence, we do not include these costs.

H. Start-Up Costs

1. Training & Recruitment

The parties agree that the LRR would incur costs to recruit professional employees and to train other employees. They agree on the cost to train maintenance supervisors, and equipment inspectors. However, the parties do not agree on the recruitment or training costs for other employees or, more generally, whether to expense or capitalize the start-up training and recruitment costs.

a. Training

WFA assumes that many of the conductors and engineers would have prior experience and would thus not require training. It assumes a mix of experience and projects formal classroom training costs accordingly. BNSF argues that the LRR would not be able to get

¹⁶⁰ WFA Open. Narr. III-D-32-33; WFA Reb. Narr. III-D-44.

¹⁶¹ BNSF Reply Narr. III.D-32.

¹⁶² BNSF Reply Narr. III.D-111.

¹⁶³ Id.

¹⁶⁴ WFA Reb. Narr. III-D-104.

experienced personnel and would have to train nearly all new engineers and conductors. We agree with BNSF, as there is a great demand for conductors and engineers, and the major Class I railroads are hiring new employees by the hundreds. See Otter Tail at C-16, CP&L at 66, and TMPA at 87.

The parties also disagree on the length and type of training that would be required and who would pay for that training. For novices, WFA proposed using community college training programs, for which students are not compensated, for T&E employee classroom training.¹⁶⁵ BNSF would have the LRR provide 3 weeks of additional classroom training for novices at the LRR's expense.¹⁶⁶ Both parties would then provide for 12 weeks of on-the-job training for these employees.¹⁶⁷ With regard to experienced T&E hires, the parties agree on the training required, with the exception of experienced conductors training to be engineers. WFA assumed 17 weeks of training for such employees, based on FRA regulations, whereas BNSF would have the LRR provide 20 weeks of training, including 4-5 weeks of classroom training.¹⁶⁸ Because it is reasonable and supported by reference to real world training programs, we use WFA's evidence regarding the length and type of training for both novices and experienced T&E employees.¹⁶⁹

The parties agree on the training required for other employees, except for train dispatchers. WFA assumed that train dispatchers would receive training at a community college at their own expense, although graduates would be reimbursed for their \$2,500 tuition costs, as is apparently customary for some sponsoring railroads.¹⁷⁰ BNSF argues that the LRR would need to pay both the tuition and the expenses of the trainees.¹⁷¹ Because WFA's assumption is reasonable and supported by real world examples, we use WFA's evidence on this matter.

b. Wages While Training

The parties generally agree that LRR employees would be paid a salary while undergoing training. They disagree, however, on what percentage of their respective salaries novice conductor trainees would receive. WFA used the training rate advertised by CSX for its conductors in 2004,¹⁷² whereas BNSF would have us assume that all trainees receive 80% of

¹⁶⁵ WFA Open. Narr. III-D-66.

¹⁶⁶ BNSF Reply Narr. III.D-116.

¹⁶⁷ WFA Open. WP. Vol. 8 at 4960; BNSF Reply Narr. III.D-116.

¹⁶⁸ WFA Reb. Narr. III-D-110; BNSF Reply Narr. III.D-117.

¹⁶⁹ We note that BNSF's calculations would result in an assumption that 75% of new T&E hires would become conductors after training, even though some of those would need to be trained as engineers instead.

¹⁷⁰ WFA Open. Narr. III-D-67-68; WFA Reb. Narr. III-D-111.

¹⁷¹ BNSF Reply III.D Operating Expense.xls, worksheet summary.

¹⁷² WFA Open. WP. Vol. 8, p. 4958.

their salary.¹⁷³ WFA has failed to justify why use of CSX's wage number is appropriate here or to show that BNSF's evidence is unrealistic. Therefore, we use BNSF's proposed percentages.

c. Start-Up Recruitment & Training Expenses

WFA would capitalize, rather than expense, the initial recruitment and training costs that the LRR would incur.¹⁷⁴ WFA's principal argument is that, under generally accepted accounting principles (GAAP), this up-front expense should be treated like other start-up capital investments and the expenses should be matched with the revenues those expenses are used to produce.¹⁷⁵ However, in previous SAC cases, the Board has found that GAAP requires the cost of training and recruiting employees to be treated as an operating expense that is not capitalized. See American Institute of Certified Public Accountants, Statement of Position 98-5, Reporting on the Costs of Start-Up Activities (1998); Otter Tail at C-17; Xcel at 75; and Duke/CSXT at 64-65.

On opening, WFA sought to bolster its flawed interpretation of GAAP by reference to Internal Revenue Service rules.¹⁷⁶ That merely shows, however, that start-up training and recruitment costs may be treated differently for tax purposes than for accounting purposes. WFA has not explained why this tax rule mandates the same treatment here, and WFA did not develop its argument any further on rebuttal.¹⁷⁷ We will not depart from GAAP without a showing that a different approach is more consistent with the underlying economic theories and objectives of the SAC test and without consideration of the implications (if any) on other aspects of the SAC analysis. So while additional evidence and further development might lead the Board to reconsider this approach in the future, WFA has not in this case met its burden of justifying a departure from our established precedent. Therefore, consistent with Board precedent, we include recruitment and training costs here as an operating expense.

d. Recruitment Cost per Employee

The parties agree that, for employees who would not require any training (such as executives and managers), the LRR would incur recruitment costs of 25% of salary for each employee.¹⁷⁸ For non-executive employees, WFA included a recruitment cost of \$1,000 per employee,¹⁷⁹ whereas BNSF would have us use a higher cost.¹⁸⁰ Because WFA's recruitment cost is reasonable and consistent with our precedent (see Xcel at 75), and BNSF has not justified a departure from that precedent here, we use WFA's evidence here.

¹⁷³ BNSF Reply Narr. III.D-118.

¹⁷⁴ WFA Open. Narr. III-D-68.

¹⁷⁵ Id.

¹⁷⁶ WFA Open. Narr. III-H-2-3.

¹⁷⁷ WFA Reb. Narr. III-D-106.

¹⁷⁸ WFA Open. Narr. III-D-68; BNSF Reply Narr. III.D-115-116.

¹⁷⁹ WFA Open. Narr. III-D-68; WFA Reb. Narr. III-D-111-112.

¹⁸⁰ BNSF Reply e-WP. "III D 3 Training & Recruitment.xls."

BNSF would also have us allocate \$100 per employee for pre-employment testing, pointing out that WCS incurs such costs.¹⁸¹ WFA argues that this expense is unnecessary, as it is already included as a component of other recruiting costs.¹⁸² We agree with WFA, and we exclude this additional expense here.

e. Subsequent Annual Recruitment & Training Expenses

The LRR, like all businesses, would need to replace employees lost to attrition. In prior SAC cases, we have used a 5.5% attrition rate. See Otter Tail at C-18; Duke/CSXT at 64; CP&L at 66; Duke/NS at 79. WFA seeks a departure from this precedent, referencing the attrition rate of CSXT in 1998 to support an attrition rate of 3%. BNSF argues that this rate is outdated and unrealistic, and that an attrition rate of 5.5% would be more appropriate.

We conclude that WFA has failed to adequately support a departure from our precedent. We seek an average attrition rate that the LRR would experience over the SAC analysis period. The average attrition rate cited by BNSF is both more current and is consistent with our precedent and we use that figure here. However, we apply this rate only when recruiting and training of replacement employees would be needed. When the amount of traffic on the LRR is projected to increase, the LRR would have to train new employees not only to replace those lost to attrition, but also to handle the additional traffic. Conversely, in those years when traffic volumes are projected to decrease, the LRR would not need to train the same number of new employees as the number that would be lost to attrition.

2. Equity Financing Fee

BNSF argues that the LRR would incur a 4% financing fee to raise the equity capital needed to construct the railroad.¹⁸³ The Board has rejected such an expense in prior SAC cases as inadequately supported. See Otter Tail at C-18; Xcel at 76; TMPA at 162; WPL at 107. Here, BNSF offers no more evidence than what has been found inadequate in prior cases. Based on discussions with the President and CEO of Anacostia & Pacific Co., BNSF asserts that the LRR would need to employ investment bankers to raise this equity capital and that it would cost approximately 4% of face value.¹⁸⁴ But absent evidence of both the existence and rate of equity flotation fees associated with equity issuances of a similar size, BNSF has not justified a departure from precedent.

¹⁸¹ BNSF Reply Narr. III.D-94.

¹⁸² WFA Reb. Narr. III-D-114-15.

¹⁸³ BNSF Reply Narr. III.D-119-20.

¹⁸⁴ BNSF Reply Narr. III.D-120.

I. Ad Valorem Tax

The parties agree on estimated ad valorem taxes for the LRR.¹⁸⁵

J. Loss and Damage

WFA calculated loss and damage costs for the LRR based on BNSF's loss and damage experience per ton for coal multiplied by the LRR's base year tonnage, using the methodology agreed to by the parties in Xcel (at 77) and TMPA (at 110).¹⁸⁶ BNSF disagrees with WFA's use of just 1 year of data, arguing that loss and damage amounts can vary significantly between years. BNSF provided an estimate based on an average of BNSF's actual loss and damage costs for the 2002-2004 period.¹⁸⁷

The Board in the past has accepted the methodology used by WFA here, because that was the only evidence of record. Here, however, BNSF has presented an alternate methodology and explained why it is more appropriate. We agree with BNSF that use of a multi-year average is superior to using just a single year of data, and we therefore use BNSF's calculation for loss and damage costs.

K. Maintenance-of-Way

A summary of the MOW costs used here is set forth below in **Table C-5**. Disputed components of those costs are then discussed.

¹⁸⁵ WFA Reb. Narr. III-D-194-95.

¹⁸⁶ WFA Open. Narr. III-D-129; WFA Reb. Narr. III-D-190-191.

¹⁸⁷ BNSF Reply Narr. III.D-199.

**Table C-5
MOW Costs**

	WFA	BNSF	STB
Staffing	\$8,461,383	\$11,411,809	\$9,364,293
Equipment	0	2,638,034	2,521,512
Materials	8,743	335,511	335,511
Contracted Maintenance Work			
Track Geometry Testing	71,442	71,858	71,491
Ultrasonic Rail Testing	167,328	160,623	160,623
Yard Cleaning	27,863	55,090	27,863
Weed Spray (24' for main branches, mine branches and interchange)	21,988	114,774	21,988
Weed Spray (16' for mine spurs, set-out and yards)	1,867	0	1,883
Brush Cutting/Mowing	45,550	45,232	45,630
Crossing Paving	105,000	0	0
Ditching	63,417	71,412	0
Equipment Maintenance	246,559	0	246,559
Communication Inspection and Spot Maintenance	145,483	0	189,384
Bridge & Culvert Inspections	52,236	204,156	59,297
General Building Maintenance	210,054	249,663	210,054
Snow Removal	50,000	112,630	87,630
Misc. Engineering	225,000	225,000	225,000
Storm Debris Removal	25,000	0	25,000
Derailments	750,000	790,000	750,000
Washouts	40,000	0	40,000
Environmental Mitigation	24,000	148,422	148,422
Noxious Weed Spraying	31,067	31,067	31,067
Rail Grinding (includes crossings)	0	0	730,239
Rail Grinding (switches)	0	0	396,831
Coal Clean up	0	600,000	264,000
Stabilization (tunnels)	0	505,250	505,250
Fuel Equipment Repairs	0	276,500	0
Training	0	1,354,151	0
Work Train Requirements	0	353,683	0
Traffic Change Over 20 Years	1.071	n.a.	n.a.
TOTAL	\$10,061,605	\$19,754,865	\$16,459,526

1. Staffing

Unlike the shippers in most recent SAC cases, WFA proposed a MOW staff that more closely reflects the real-world staffing level of Class I railroads. Specifically, WFA proposed a staff of mostly in-house employees to perform maintenance activities, rather than outsourcing these tasks to outside parties. As a result, the differences between the parties' staffing levels is not as dramatic as in past cases, and where there are differences, we are able to assess how many employees are needed on a departmental basis, rather than a staff-wide basis.

The parties' staffing proposals break down into two categories: managerial/office employees and field workers. WFA proposed 14 office employees. BNSF proposed that the LRR should have 7 MOW office employees, but BNSF also included a separate group of 7 Roadmasters and Supervisors for positions that could be considered part of the managerial staff, but that it did not categorize as such. Despite the parties' different titles for these positions, for all intents and purposes, the parties agree that 14 MOW managerial/office employees would be required.

As for field workers, BNSF argues that 114 field workers would be necessary, while on rebuttal, WFA included only 82 workers.¹⁸⁸ The differences between the parties' numbers are broken out by category and our results are shown in **Table C-6**.

Table C-6
LRR MOW Staffing

Department	WFA	BNSF	STB
Track Department	54	59	54
Signals Department	23	33	22
Communications Department	0	10	10
Bridge & Building (B&B)	3	7	7
Purchasing/Stores	1	3	3
Electrical Department	1	2	1
Total¹⁸⁹	82	114	97
Total Track Miles (excluding yards, set-outs or helper track)	391	416	391
Track Miles/Employee	4.8	3.7	4.0

¹⁸⁸ Compare BNSF Reply Narr. III-D-154 with WFA Reb. Narr. III-D-124-25.

¹⁸⁹ See WFA Reb e-WP. "Spot Maint. Rebuttal.xls" & BNSF Reply e-WP. "III D 4 Maintenance Of Way.xls."

a. Track Maintenance

The parties disagree on the number of track maintenance employees by only five workers. WFA has proposed 54 track maintenance employees,¹⁹⁰ while BNSF has proposed 59.¹⁹¹

A table showing how WFA and BNSF breakdown track maintenance employees (based on their respective narratives) is provided below, in **Table C-7**.

Table C-7
Track Maintenance Employees by Party

Position	BNSF	WFA
Mgr. of Track Maintenance	--	2
Assistant Manager	--	2
Track Maint. Crew Members	20	20
Welding Crew Members	8	6
Track Inspectors	8	4
Machine Operators/Truck Drivers *	10	7
Ditching & Spot Surfacing Crew Members	--	6
Mechanics	2	2
Lubricators	--	2
District Gang/System Crew	6	3
Night Crew	5	--
Total	59	54

* BNSF proposes that these workers would be seasonal

For the largest group within this department—the actual track section maintenance crews—the parties agree on the number of employees required (five districts each with a four-man crew, for a total of 20 employees). For the remaining employees, WFA included some categories of employees that BNSF would exclude and vice-versa, and for some categories, BNSF included more employees than WFA. The parties’ different numbers reflect differences in philosophy over how the maintenance work would best be accomplished. BNSF would replace

¹⁹⁰ While WFA listed 54 employees in both its rebuttal narrative and in its MOW personnel spreadsheet, its lists of employees do not match. Compare WFA Reb. e-WP. “Spot Maint Rebuttal.xls,” tab “Personel” with WFA Reb. III-D-126-27. For instance, in the narrative, WFA asserts that the LRR would use 20 track maintenance crew members, but in its spreadsheet, it listed only 17 members. We rely on the breakdown in its narrative.

¹⁹¹ There is also a discrepancy between BNSF’s reply narrative and its spreadsheet. Compare BNSF Reply e-WP. “III D 4 Maintenance-of-Way.xls,” tab “Personnel” with BNSF Reply Narr. III-D-156. For example, in its reply narrative, BNSF would have the LRR hire 10 machine operators/truck drivers (as seasonal employees), but in its spreadsheet, BNSF listed 10 machine operators and 7 truck drivers. We rely on the breakdown in its narrative.

specialized workers proposed by WFA (including two ditching crew members, four surfacing crew members, and two lubricator technicians) with seasonal employees and district gangs.¹⁹² BNSF would also include five additional employees for a night response crew, whereas WFA argues that this work could be accomplished by a three-man district gang.¹⁹³ Finally, BNSF would increase the number of WFA's proposed welders from six to eight, and track inspectors from four to eight.¹⁹⁴

Both parties' approaches are based on the experience of their respective witnesses, although with no documentation in support. BNSF has only made vague claims as to why WFA's approach is infeasible and many of these claims were refuted by WFA on rebuttal. In many instances, BNSF's justification for its employee count appears to be based solely on its own, real-world personnel requirements, with no evidence as to why the differing staffing distribution proposed by WFA would be insufficient. As the Board has noted in prior SAC cases, the fact that a shipper's operations differ from that of the incumbent railroad does not in itself demonstrate infeasibility.

One example of BNSF's failure to refute the feasibility of WFA's staffing involves track inspectors. BNSF would increase the number of track inspectors from WFA's proposed four to eight, presumably due to the fact that BNSF would use two-person inspection teams.¹⁹⁵ However, BNSF has not explained why inspections would require two people. Moreover, WFA proposes that its Assistant Managers—which BNSF would eliminate—would perform track inspections as part of their duties.¹⁹⁶

The same is true with regard to BNSF's proposal to use seasonal workers and district gangs. BNSF asserts that the work of ditching, surfacing, and lubrication could be performed more efficiently by district gangs and by seasonal workers.¹⁹⁷ But even if this were true (which WFA disputes), BNSF has not shown that WFA's different approach is infeasible.

Concerning the number of welders, BNSF claims that the LRR would need two more than WFA proposed. BNSF's adjustment is based on its own welding gangs' production rates and the size, tonnage, and speed of the LRR,¹⁹⁸ but BNSF provided no evidence in support of this claim. (We note that our use of WFA's specifications for ties should lessen the need for welders.)

Finally, WFA has addressed the concern raised by BNSF that a night crew would be necessary for maintenance emergencies and to perform work at less congested times. On

¹⁹² Id. at III-D-155-56.

¹⁹³ Id. at III-D-154-55; WFA Reb. Narr. III-D-129-31.

¹⁹⁴ BNSF Reply Narr. III-D-157-58.

¹⁹⁵ See BNSF Reply Narr. III-D-156; WFA Reb. Narr. III-D-128-29.

¹⁹⁶ WFA Reb. Narr. III-D-129.

¹⁹⁷ BNSF Reply Narr. III-D-155.

¹⁹⁸ BNSF Reply Narr. III-D-158.

rebuttal, WFA added a three-person System Track Crew to cover nights and weekends,¹⁹⁹ which should be sufficient for handling nighttime emergencies. We agree with WFA that regular maintenance would not be performed at night because the LRR would not be less congested at night, as BNSF claims.

For these reasons, we use WFA's evidence on the number of track maintenance workers.

b. Bridge and Building Maintenance

WFA proposed a total of only three bridge and building (B&B) workers, while BNSF proposed a total of seven, including one B&B foreman, three carpenters/helpers, and one machine operator/truck driver, all of which are excluded by WFA.²⁰⁰ WFA argues that the LRR would need fewer bridge workers because its track maintenance field crews would perform some of the minor bridge work, while major repairs would be contracted out.²⁰¹ BNSF claims that putting the LRR's 100 bridges under the scope of the track maintenance employees would stretch that department too thin.²⁰² As for building maintenance, WFA claims that it would outsource this function, a proposal that BNSF argues is unrealistic.²⁰³

We reject WFA's proposed B&B department staff level. The notion of employing only three workers to oversee inspection and maintenance of 100 bridges and a myriad of buildings, while contracting out the bulk of this work, is not feasible. We agree with BNSF that using track maintenance field crews to perform bridge repair work would put a strain on those crews' workload and divert them from their primary tasks of maintaining regular track. BNSF is also correct that contractors generally cannot provide the same responsiveness as in-house employees, who are more familiar with the railroad's territory and maintenance procedures.²⁰⁴ Instead, having employees that can assist immediately in bridge repair is necessary, particularly in an emergency, when it would take too much time to hire an outside contractor and wait for them to travel to the problem area.

WFA's proposal to outsource most building maintenance is also infeasible. Spot maintenance, by definition, includes those problems that occur on a day-to-day basis, and as such, require necessary personnel on duty at all times. For that reason, the Board has disfavored the notion that spot MOW function could be outsourced. See, e.g., Xcel at 79. We therefore use BNSF's proposed B&B staffing level.

¹⁹⁹ WFA Reb. Narr. III-D-131.

²⁰⁰ WFA Reb. Narr. III-D-126; BNSF Reply Narr. III-D-160.

²⁰¹ WFA Reb. Narr. III-D-138-39.

²⁰² BNSF Reply Narr. III-D-159.

²⁰³ WFA Open. Narr. III-D-110; BNSF Reply Narr. III-D-160.

²⁰⁴ See BNSF Reply Narr. III-D-132-33.

c. Signals and Communication Maintenance

The parties presented entirely different approaches to signal and communication maintenance. WFA relies on one department to perform all these functions, while BNSF would divide the work between a signals department and a communications department. Consequently, BNSF would have the LRR employ 43 field workers (33 for signal maintenance and 10 for communications maintenance), compared to WFA's proposal for 23 workers.²⁰⁵

BNSF argues against WFA's plan for the LRR to cross-train employees for both signal and communications maintenance on the ground that the skills and training required to maintain, inspect and test signals are substantially different in many respects than those needed to maintain, inspect, and test the communications system.²⁰⁶ BNSF also notes that WFA did not take into account the higher costs for recruitment, training, and compensation of such employees. Finally, BNSF notes that, under WFA's proposed staffing level, a signal maintainer would be responsible for approximately 1,688 signal units, an unreasonable workload according to BNSF. BNSF points out that this would be significantly higher than BNSF's own standard of 900 to 1,200 signal units per maintainer.²⁰⁷

WFA counters that BNSF has provided no evidence that signals and communication maintenance could not be performed by the same workers. WFA claims that BNSF's proposal would divide the two functions along union lines, even though the LRR would not be bound by union restrictions.²⁰⁸ WFA notes that both Western Rail Properties, Inc. (WRPI) and Monongahela Railway (MGA) combine signals and communication maintenance functions.

WFA also disputes BNSF's signals-per-employee calculation, claiming that BNSF overstated the number of signal units. WFA argues that, once the correct number of signal units is totaled, it comes out to 1,239 units per maintainer, close to the average for BNSF maintainers. WFA argues that this is a reasonable workload when compared to other real-world railroads. Specifically, WFA points to the former Denver and Rio Grande Railroad/Southern Pacific, which had an average of 1,600 signal units per maintainer.²⁰⁹ Finally, WFA argues that the LRR could get by with fewer signals and communications employees because it would outsource the major communications maintenance. Moreover, WFA argues that such work would be done as programmed, not annual, maintenance.²¹⁰

BNSF claims that outsourcing would not be feasible because "even small problems with communication systems can lead to system-wide delays and outages [and] it is vital that problems be addressed quickly and effectively."²¹¹ BNSF also argues that under WFA's staffing

²⁰⁵ BNSF Reply Narr. III-D-153-54; WFA Open. Narr. III-D-126.

²⁰⁶ See BNSF Reply Narr. III-D-135.

²⁰⁷ BNSF Reply Narr. III-D-163.

²⁰⁸ WFA Reb. Narr. III-D-141-42.

²⁰⁹ Id. at III-D-144-46.

²¹⁰ Id. at III-D-147.

²¹¹ See BNSF Reply Narr. III-D-132.

plan, the LRR would be calling upon the third-party contractors frequently because there would be so few signal maintainers that they would not be available to work on the communications system. Finally, BNSF argues that WFA has not budgeted a sufficient amount to pay these contractors, apparently due to the fact that WFA considers most of the work as program maintenance.²¹²

We find that WFA has failed to show that one department composed of signal maintainers could be trained to oversee the two broad and important functions of signal and communications maintenance. While the concept of cross-training workers to perform different functions is reasonable for some situations (as WFA demonstrates by its reference to WRPI and MGA), where as here the functions sought to be combined are significantly dissimilar, it must first be demonstrated that training an employee to perform those dissimilar functions would be feasible. Here, BNSF has challenged combining these functions, which it claims require different sets of skills and knowledge. WFA has not provided sufficient evidence to rebut that challenge.

WFA has offered as an example that pole line installation is no longer the principal function of communications workers.²¹³ While that may be true, WFA ignores other functions that are traditionally performed by communications workers. BNSF, for example, would include employees that would maintain microwave and radio technology.²¹⁴ Although signal technology and communication technology in the railroad industry are increasingly overlapping, WFA has not provided sufficient evidence that the signal and communications technologies that would be used on the LRR would be sufficiently similar so that employees could be cross-trained to maintain both. Thus, we cannot assess whether WFA's proposed maintainers would be capable of performing both signal and communication maintenance functions.

Although WFA points to WRPI and MGA for support for its proposition that the LRR's employees could be cross-trained to perform both signal and communications functions, both those railroads have been defunct for over 10 years and during that time, the communications technology has changed significantly (particularly with the introduction of digital and wireless technologies), making this comparison immaterial. Were WFA able to point to any railroads operating today that combine the signal and communications functions, it would carry greater weight. In addition, as BNSF notes, even if we were to assume that these functions could be combined through cross-training, WFA did not take into account the higher costs for recruitment and training of such employees.

This is not say that the possibility of combining signals and communications in general is infeasible, particularly when considering that (as WFA notes) a SARR would not be bound by the union rules that apply to Class I Railroads and that the technology for signals and for communications are blending more and more. However, in this case, we find that WFA has not

²¹² BNSF Reply Narr. III-D-131-32.

²¹³ WFA Reb. Narr. III-D-142.

²¹⁴ BNSF Reply Exh. III-D-4-1 (proposing that the LRR employee three Microwave Technicians and two Radio Shop Technicians).

presented sufficient evidence to demonstrate that these two functions could be combined on the LRR.

WFA's claim that all of the LRR's major communications maintenance could be performed by outside contractors also does not appear to be reasonable.²¹⁵ We agree with BNSF that even small problems with the communication system could lead to system-wide delays, outages, and safety issues. Thus, it would be of the utmost importance to restore communications as quickly as possible, which could be more easily and readily accomplished with internal MOW employees who specialize solely in communications, such as the communications technicians and maintainers that BNSF proposes for the LRR. Moreover, WFA has not provided evidence of outside contractors available to do such work or the means and costs of providing necessary training an outside contractor to do such work.

For these reasons, we accept BNSF's separate signals and communications departments and its personnel requirements for each department, with the exception of the number of signal maintainers. WFA is correct that BNSF overstates the number of signal maintainers that would be needed on the LRR. BNSF proposes 24 signal maintainers so that the amount of signal units per maintainer is 1,203, but WFA correctly notes that BNSF overstates the number of signal units. As we have found in **Appendix D—Road Property Investment**, we accept WFA's significantly lower number of signal units for the LRR. Based on this number of signal units, WFA proposes 13 signal maintainers, for a ratio of 1,239 units per maintainer. This ratio is only slightly greater than the 1,203 signal units-to-maintainer ratio advocated by BNSF, and thus, feasible. Accordingly, we use WFA's number of signal maintainers.

A breakdown of the number of signals and communications employees we use for the LRR is provided in the table below.

²¹⁵ WFA Reb. Narr. III-D-147.

Table C-8
Signal and Communication Maintenance Employees

	BNSF	WFA	STB
Signals Department			
Dispatch Center Technicians	5	5	5
Signal Technician/Inspectors	2	3	2
Signal Maintainers	24	13	13
Signal Supervisors/Foremen	2	2	2
Signals Department Total ²¹⁶	33	23	22
Communications Dept. Total	10	0	10
TOTAL	43	23	32

d. Electrical Maintenance

The parties agree that one electrician would be needed, but BNSF would also include a position for an electrical foreman.²¹⁷ BNSF argues that the foreman would be needed to coordinate the safety program for electrical employees (presumably the signal and communication workers that would deal with electrical equipment), as well as to coordinate electrical maintenance inventory and equipment and with other departments.²¹⁸ WFA argues that a foreman would not be need to oversee only one employee.²¹⁹

We agree with WFA that an electrical foreman would not be required. Based on BNSF's description of the foreman's duties, its proposed foreman would essentially be serving as a middle-manager, whose responsibilities could as readily be performed by the MOW managers, as suggested by WFA. Accordingly, we use WFA's evidence.

e. Purchasing and Materials Management

BNSF would also have us include a separate department for purchasing and materials management, consisting of three employees.²²⁰ WFA claims that the purchasing function would be handled by the LRR's Finance and Accounting department, supplemented by a Manager of Administration and Budgets in the MOW management staff. As for the material-handling

²¹⁶ The subtraction of 11 signal maintainers from BNSF's signals department staffing level brings the number of employees that we find necessary for the signals department to 22, which is one less employee than WFA proposed for its joint signals/communications department. This difference of one employee is due to the fact that BNSF proposed one less signal technician/inspector than WFA proposed.

²¹⁷ BNSF Reply Narr. III-D-170; WFA Reb. Narr. III-D-148-49.

²¹⁸ BNSF Reply Narr. III-D-170.

²¹⁹ WFA Reb. Narr. III-D-149.

²²⁰ BNSF Reply Narr. III-D-171.

function, WFA argues that no employees would be needed because such work could be “assisted by contractors and most materials would be shipped directly from vendors to the worksite.”²²¹

We agree with BNSF that a small purchasing and materials management department would be needed. Not all materials would be sent directly to the location where needed. As BNSF notes, supplies would sometimes need to be furnished for unplanned maintenance or emergencies. Moreover, the LRR would need to keep a detailed inventory of materials used so that materials would not run low and maintenance be delayed. A purchasing and materials department would also need to keep abreast of and seek out the best suppliers from whom to obtain materials. These tasks are broad enough in scope to require a department whose sole purpose is devoted to these tasks. We therefore include the cost for a purchasing and materials management department.

2. Compensation

The parties’ arguments and evidence regarding MOW employee compensation are similar to those offered in Otter Tail. Accordingly, much of our conclusions here follow the Board’s findings in that case.

a. Salaries – Field Workers

For base wages for field workers, both parties claim to have relied on BNSF Wage Forms A & B, although BNSF broke compensation down by specific employee type, rather than using the broader categories in the wage forms.²²² However, the record shows that BNSF did not rely on its own Wage Forms,²²³ but rather, another document.²²⁴ BNSF has provided no explanation of where this document came from or why it should be considered more reliable than the Wage Forms that WFA relied upon. See Otter Tail at C-22 (rejecting BNSF’s reliance on this same evidence). Accordingly, we use WFA’s evidence of base wages for field workers.

b. Salaries – Supervisors/Managers

WFA also relied on BNSF Wage Forms A & B for the base salaries of supervisory MOW employees. BNSF offered different evidence, based on a document of unknown origin that provides salaries, some of which date back to the late 1990s, and then appears to index these salaries by an unsupported 12% adjustment factor. Because WFA’s evidence is reasonable and supported, we use its evidence on base salaries for MOW supervisory staff.

²²¹ See WFA Reb. Narr. III-D-150.

²²² BNSF Reply Narr. III-D-173.

²²³ WFA asserts that the salaries were pulled from a Brotherhood of Maintenance of Way agreement. WFA Reb. Narr. III-D-153.

²²⁴ See BNSF Reply e-WP. “MOW Compensation.pdf.” This document is not BNSF Wage Forms A & B.

c. Overtime

The parties also dispute the percentage factor for overtime compensation. WFA again bases its overtime allowance on Wage Forms A & B,²²⁵ and it calculated the amount of overtime compensation that BNSF paid to specific categories of employees. BNSF countered with a percentage allegedly based on its own engineering office operating expense for overtime in 2004, and it claims that the percentage is consistent with the overtime reported in Wage Forms A & B.²²⁶ BNSF applied that factor to all employees, regardless of craft. However, BNSF has demonstrated why this source material is more reliable than its own Wage Forms. Moreover, WFA's evidence is more precise, as it is specific to each category of employee. We therefore use WFA's overtime evidence.

d. Fringe Benefits

WFA relied on the fringe benefit ratio paid to all railroad employees working in Wyoming. BNSF has proposed a much higher fringe benefit ratio, based on the same document from which it obtained its proposed overtime allowance. As WFA has pointed out, BNSF's proposed ratio is contradicted by its own 2004 R-1 Report, which shows a ratio almost identical to the one proposed by WFA. See Otter Tail at C-23. Moreover, BNSF has not explained why the LRR's fringe benefit ratio for MOW employees should be higher than for other employees (for whom BNSF agreed to WFA's lower ratio). Accordingly, we use WFA's evidence.

e. Travel and Materials and Supplies

The parties agree that a 10% additive should be applied for employee travel expenses, but they disagree on the proper additive for materials and supplies.

For office supplies, WFA applied a flat figure of \$514 and only for certain employees. BNSF would have us apply a 5% factor for office materials. In past SAC cases, the Board used a 5% additive because it was the best (or only) evidence of record. Here, however, WFA has provided an actual itemization of office supplies that is more specific than BNSF's simple percentage.²²⁷ Moreover, BNSF has not shown why this additive should be applied to field workers. WFA more appropriately applies this additive only to those employees that would work in an office. Therefore, we use WFA's cost evidence for office supplies.

For expendable materials, WFA applied a 35% factor as a "Small Tools & Materials Additive." BNSF applied a department-specific additive for the "expendable materials," based on the actual requirements for BNSF's own MOW departments.²²⁸ WFA's broader percentage is unjustified, whereas BNSF's department-specific figures are supported by evidence of actual

²²⁵ WFA Reb. Narr. III-D-153.

²²⁶ BNSF Reply Narr. III-D-173-74.

²²⁷ See WFA Reb. e-WP. "LRR Materials and Supplies.xls," tabs "Desk and Chair" and "MS Office Suppl."

²²⁸ See BNSF Reply Narr. III-D-175.

expenditures.²²⁹ Therefore, we use BNSF's evidence on the additive for maintenance supplies and materials.

3. Equipment

The parties significantly differ in both their costs for the maintenance equipment that would be needed for the LRR and on the costs of operating and maintaining this equipment. These two categories of costs are discussed below.

a. Inventory

In past SAC cases, the Board has usually used one party's MOW staffing level in toto, and that party's corresponding equipment in toto. Here, however, we use a mix of the two parties' staffing proposals. However, trying to match specific equipment for specific employees would be impractical, because the parties would each have the LRR assign and distribute work in a different manner. If we were to mix and match the parties' respective equipment inventories, it would likely lead to errors, such as double counts or failure to account for certain equipment. Accordingly, we believe the more practical approach is to accept one party's proposal inventory in toto.

WFA's inventory proposal presumably includes equipment needed for only the MOW staff that it proposed. Because we have concluded that the LRR's MOW staff would be larger, WFA's equipment inventory is understated. Conversely, BNSF's equipment inventory is overstated, because the staffing level we use is less than the level proposed by BNSF. Absent better evidence, we believe that it is better to be overly inclusive and ensure that all necessary equipment is accounted for, even if this results in a slight overstatement of equipment costs. Moreover, we note that the staffing level that we use is only a few employees less than BNSF's proposed staffing level. For these reasons, we use BNSF's proposed equipment inventory here, with the exceptions discussed below.

On rebuttal, WFA argues that not all of the equipment proposed by BNSF would be necessary for a railroad the size of the LRR and that BNSF has not explained why certain pieces of equipment would be needed. We address those claims below.

First, WFA objects to BNSF's inclusion of a bridge derrick (an on-track crane), which costs \$1.9 million. This piece of equipment is for use in the event that a bridge has washed out, but WFA argues that a washout would be highly unlikely. WFA also argues that if a washout were to occur, the LRR would use crawler cranes and, if that fails, borrow a bridge derrick from BNSF or UP, as is common industry practice.²³⁰

We agree that it would be impractical for the LRR to purchase a bridge derrick. Its bridges would be newly constructed and thus more able to withstand floods. And since the LRR would have fewer bridges on its system than BNSF, the odds of a washout would be even less likely. Moreover, WFA has proposed an adequate backup plan. Weighing the substantial cost of

²²⁹ See BNSF Reply Exh. III-D-4-1.

²³⁰ WFA Reb. Narr. III-D-158.

this piece of equipment against the small odds that it would be needed, we believe it is reasonable to exclude this cost.

Second, WFA would provide for two speed swings (one for each territory covered by its field maintenance managers).²³¹ BNSF would have the LRR provide each field crew with a speed swing (for a total of five speed swings).²³² WFA would instead provide for each crew to have the use of hi-rail boom truck. BNSF has not demonstrated that WFA's proposal would be infeasible for the performance of spot maintenance. Therefore, we use WFA's evidence.

Finally, WFA claims that some of the equipment suggested by BNSF would not be needed because the work would be performed by outside contractors that would provide their own equipment. Although some of the work WFA lists would indeed be performed by outside contractors, WFA lists only a few specific items that would not be needed, such as brush cutters, mowers, and snow plows. However, BNSF would not include any of this equipment itself, at least as an annual expense. WFA apparently looked at BNSF's program maintenance inventory (which is a capital cost), as well as the spot maintenance inventory, when reviewing BNSF's equipment list.²³³ (WFA's decision to capitalize its entire MOW equipment cost may have led to this error.) Because BNSF did not include any equipment that a contractor would provide as an annual cost, there is no basis to exclude any other equipment from BNSF's proposed inventory.

b. Ownership Costs

BNSF argues that the ownership costs presented by WFA for the MOW equipment is understated, as demonstrated by a special study that BNSF performed of equipment costs. A review of WFA's evidence shows that WFA has not provided any basis for the unit costs it used for equipment. WFA asserts that BNSF's study may be flawed.²³⁴ However, the burden is on WFA to support the costs it uses, and WFA has not provided any support here. Because BNSF provided at least some support for its cost figures, we use BNSF's unit costs for equipment.

WFA also took the unusual step of capitalizing the entire MOW equipment ownership cost.²³⁵ On reply, BNSF objected to WFA's approach. BNSF argues that WFA amortized this cost over a 5-year period but that the use of 5 years is arbitrary and unsupported.²³⁶ We agree with BNSF that WFA failed to sufficiently justify this change in precedent in its opening. Although WFA notes in its rebuttal that the 5-year time period is justified by the U.S. Master

²³¹ A speed swing is a piece of hi-rail equipment equipped with a boom for lifting and moving rails, ties, and other items. WFA Reb. Narr. III-D-159.

²³² WFA argues that BNSF included 12 speed swings, but 7 of those were for program maintenance, which is not included as an annual operating expense.

²³³ Compare BNSF Reply Exh. III.D-4-1 at 5 with BNSF Reply Exh. III.D-4-1 at 6.

²³⁴ See BNSF Reply Exh. III-D-4-1.

²³⁵ WFA Open. Narr. III-D-118.

²³⁶ BNSF Reply Narr. III-D-150.

Tax Guide,²³⁷ WFA improperly submitted this evidence for the first time on rebuttal, thus depriving BNSF the opportunity to refute this evidence. Moreover, WFA's approach would mark a change from the Board's precedent of treating MOW equipment costs as an annual expense and WFA has not provided sufficiently compelling evidence to justify a departure from precedent. Accordingly, the ownership cost for the MOW equipment (based on WFA's inventory and BNSF's unit costs) will instead be restated as an annual expense.

c. Operating and Maintenance Costs

The parties differ substantially on the costs needed to operate and maintain the equipment. WFA assumed that operating and maintenance costs would be equal to 5% of the annual ownership costs of the equipment.²³⁸ BNSF argues that this 5% factor is arbitrary. Instead, BNSF relied on its special study of equipment costs, which it claims shows that the annual operating and maintenance costs would be ten times WFA's proposed annual cost.²³⁹

WFA argues that BNSF's special study is flawed for three reasons. First, WFA argues that BNSF based the study on BNSF's proposed equipment inventory but, for reasons discussed above, this inventory is overstated and, thus, so are the resultant operating and maintenance costs. Second, WFA claims that for 12 equipment types, BNSF accounted for both shop labor and field labor, even though field labor has already been accounted for elsewhere. As a result, WFA asserts that BNSF's special study includes an inappropriate double count for these equipment types. Third, WFA claims that for 11 of the equipment types, the special study merely relied on a 1995 analysis that contained no operating cost information.²⁴⁰

Neither party has presented solid evidence of the equipment operating and maintenance costs. WFA's percentage is unexplained and lacks any specificity. Although BNSF's special study as it pertains to operating and maintenance costs may be flawed, it is nevertheless the only evidence of record for which any support has been provided. Therefore we use BNSF's purported operating and maintenance costs for equipment.

4. Contract Maintenance

The parties agree that some maintenance would be handled by contractors, rather than by the LRR's MOW staff. They disagree, however, on how much work should be contracted out. These disputes, as well as disagreements over cost and quantities for this contracted maintenance work, are discussed below.

²³⁷ WFA Reb. Narr. III-G-44.

²³⁸ WFA Reb. Narr. III-D-160.

²³⁹ BNSF Reply Narr. III-D-178-79.

²⁴⁰ WFA Reb. Narr. III-D-161-62.

a. Vegetation Control

The parties agree on the cost for brush cutting and noxious weed spraying, but BNSF argues that WFA's cost for regular weed spraying is too low. WFA based its unit cost for regular weed spraying on a BNSF contract, but according to BNSF, that contract does not include the cost of chemicals used in the spraying, which it claims must be included in the unit cost.²⁴¹ WFA counters that there is no evidence that chemicals are not included in the contract price.²⁴² Because there is no evidence that BNSF incurs a separate cost for weed spraying chemicals, we use WFA's unit cost. See Otter Tail at C-24.

b. Ultrasonic Rail Testing

The parties agree on the unit cost per mile for ultrasonic rail testing, but disagree on how often the testing should be performed. WFA argues that all rail should be tested four times per year. Relying on its own rail-testing standards, BNSF agrees that rail with tonnages of 50 million gross tons (MGT) or more would have to be tested four times a year, but asserts that rail with less than 50 MGT should be tested twice a year.²⁴³ Because the SARR is intended to be a least-cost railroad, and BNSF has presented evidence that testing can be performed less frequently than proposed by WFA, we use BNSF's testing frequencies and hence its lower testing cost. See Otter Tail at C-25.

c. Track Geometry Testing

The parties agree on the unit cost for track geometry testing, but reached slightly different total costs due to differences in their system configurations. We adjust the cost for track geometry testing so that it is consistent with the system configuration we use here.

d. Rail Grinding

i. Frequency

The parties dispute the frequency with which rail grinding should be performed. BNSF argues that WFA misinterpreted the results of a special study it relied on for grinding frequency. According to BNSF, WFA interpreted the study as supporting its plan for the LRR to perform rail grinding correctively rather than preventatively, but that the study actually concluded that preventative grinding is necessary. BNSF further argues that preventative grinding is a generally accepted practice in the industry. BNSF would have us rely on its own grinding standards, specifically, curves greater than 3 degrees every 15 MGT, curves less than 3 degrees every 30 MGT, and tangents every 60 MGT.²⁴⁴ (The parties agree that when grinding is performed, two

²⁴¹ BNSF Reply Narr. III-D-181.

²⁴² WFA Reb. Narr. III-D-164.

²⁴³ BNSF Reply Narr. III-D-181.

²⁴⁴ BNSF Reply Narr. III-D-182-83.

passes would be required for curves greater than 3 degrees and one pass for all other curves and tangents.)

WFA argues that BNSF has failed to take into account that under WFA's design the LRR would be built mostly with premium rail (approximately 85% of its system). WFA notes that under BNSF's plan, the LRR would be built with premium rail only on curves 3 degrees or greater and with standard rail for the rest of the system. WFA argues that, because premium rail does not have to be grinded as frequently, BNSF's frequencies are too high.²⁴⁵

WFA claims that Canadian National Railway Company (CN), a Class I railroad, performs rail grinding less frequently than BNSF proposes. On rebuttal, WFA increased its proposed rail grinding frequencies to be consistent with CN's frequencies (although still not as frequent as BNSF proposes). Specifically, WFA proposes frequencies of 30 MGT for all curves, 60 MGT for tangent track constructed with standard rail, and 100 MGT for tangent track constructed with premium rail.²⁴⁶

We agree with WFA that, because the LRR would use premium rail on most of its system, rail grinding would not be needed as frequently as BNSF assumes. Accordingly, we use the rail grinding frequencies proposed by WFA on rebuttal.

ii. Unit Cost

The parties also differ on the unit costs for rail grinding. WFA based its unit cost on a BNSF contract, but BNSF claims that it incurs other costs beyond those provided for in the contract.²⁴⁷ BNSF provided an e-mail from one of its employees in support of this higher unit cost, but it failed to break down the additional amount by specific item. Nor has BNSF provided evidence (other than the unsubstantiated e-mail) that it incurs such costs. Because BNSF has failed to discredit WFA's evidence, we use WFA's unit cost for rail grinding.

Contrary to Board precedent, WFA categorized the rail grinding cost as a capitalized expense.²⁴⁸ Although BNSF claims to support WFA's plan to capitalize this expense,²⁴⁹ BNSF points out that WFA failed to account for inflation in future years in calculating the present-day capital cost. As this illustrates, treating grinding as a capital cost unnecessarily complicates the calculation. It makes more sense to calculate grinding as an annual expense, so that inflation is properly accounted for. Moreover, because grinding would have to be performed with regularity throughout the DCF period, it is more appropriate to consider it as an annual expense. Because neither party has provided a reasonable basis for deviating from precedent, we include rail grinding as an annual operating expense.

²⁴⁵ WFA Reb. Narr. III-D-166-67.

²⁴⁶ WFA Reb. Narr. III-D-167-68.

²⁴⁷ BNSF Reply Narr. III-D-185.

²⁴⁸ WFA Reb. Narr. III-D-166.

²⁴⁹ BNSF Reply Narr. III-G-22.

e. Buildings and Bridges Maintenance

For building maintenance, both parties included 0.5% of building costs. BNSF argues that this amount would cover only major building repairs and that spot maintenance should be covered by the LRR's MOW workforce. BNSF included employees for this purpose, and, as discussed above, we include those employees.

Although not discussed in their narratives, the parties disagree on bridge maintenance costs. The parties used different methods for developing these costs. Based on a review of their differing methods, WFA's method better takes into account the elements needed to derive an accurate bridge maintenance cost (i.e., number of bridges, number of inspectors, inspection rate, and wages of inspectors) than does BNSF's method (which is derived from total bridge length and the number of bridge inspector/maintenance workers). We use WFA's evidence, but restate the bridge maintenance costs based on the number of bridge personnel, wages, and number of bridges that we use.

f. Crossing Repairs

On opening, WFA included a cost for repairing asphalt crossings (essentially, a repaving expense).²⁵⁰ BNSF, in its reply, argued that crossings made of concrete were more appropriate, and WFA agreed on rebuttal to having the LRR construct crossings with concrete because "the frequency of repaving is such that concrete crossings [would be] more economical in the long term."²⁵¹ This eliminated any need for an annual crossing repair/repaving cost. Nevertheless, in its rebuttal spreadsheet, WFA continued to include this cost.²⁵² Based on WFA's statements in its rebuttal narrative, we view the inclusion of this cost in its spreadsheet as an oversight. We do not include a cost for crossing repair/repaving here.

g. Ditching

There is a slight difference (0.2 miles) between the number of route miles that each party claims would need to be ditched annually. The difference arises because WFA excluded the LRR-owned portion of mine lead tracks, which WFA claims (without citation) is consistent with past SAC cases. However, if this has been done in past cases, it has been by agreement of the parties without bringing it to the Board's attention, as we have not found any discussion of this issue. Moreover, WFA provides no justification for why the LRR-owned portion of the mine lead tracks would not need to be ditched. Accordingly, we use BNSF's evidence on the number of route miles that would be ditched annually.

The parties also differ on the unit cost for ditching. WFA relied on a BNSF contract to develop this cost, but BNSF claims that it also pays additional costs for fuel, a full-time

²⁵⁰ WFA Open. Narr. III-D-107.

²⁵¹ WFA Reb. Narr. III-F-173.

²⁵² WFA Reb. e-WP. "Spot Maint Rebuttal.xls," tabs "Spot Maintenance Summary" and "Contract Work."

pilot/flagman, and occasionally additional laborers, thus increasing its unit cost.²⁵³ To support this claim, BNSF submitted a confidential document dated December 23, 1999. However, a review of this document supports only an additional cost for a pilot/flagman, and in any event, the document does not provide evidence of the cost that BNSF pays for a pilot/flagman. Because BNSF's additional costs are not supported, we use WFA's unit cost for ditching.

h. Snow and Storm Debris Removal

WFA included an annual cost of \$50,000 for snow removal and \$25,000 for storm debris removal. It claims that the LRR's snow removal needs would not be larger given the traffic density on the lines and the LRR's planned use of switch heaters and ballast regulators with snow blowers. WFA further claims that the LRR would not have much storm debris due to the small amount of vegetation in its territory.²⁵⁴ BNSF proposes higher cost figures, based on its own per-track-mile removal costs.²⁵⁵

WFA has provided no explanation for how it obtained its costs figures. BNSF's unit cost is based on actual data, specifically its R-1 Report. Accordingly, we use BNSF's unit cost evidence here. See Otter Tail at C-27-28.

i. Derailment and Casualty Repairs

The parties agree to the overall costs that the LRR would incur for derailments and washout casualties.

j. Environmental Cleanup and Prevention

WFA provided for \$24,000 for environmental cleanup, claiming that a more significant investment would not be needed because the LRR's fueling facilities would be constructed to protect against uncontained discharges. BNSF proposes a significantly higher cost, primarily based on the costs incurred at its fueling facility at Belen, NM. BNSF notes that this facility is one of its most state-of-the-art fueling facilities, yet it incurs costs for fuel spills. WFA counters in its rebuttal that BNSF has not specified what the Belen costs covered. Moreover, WFA claims that it would have been more appropriate for BNSF to use its own Guernsey fueling facility costs for comparison. According to WFA, BNSF's Guernsey environmental costs are significantly lower than the cost BNSF proposes for the LRR.

Neither party has presented much evidence in support of its costs or explained the methodology used to calculate costs. WFA has not stated where it derived its proposed cost of \$24,000, and BNSF's only evidence is a "workpaper" that is nothing more than a one-page sheet with some typed-out notes. Because the burden to present a supported and reasonable cost lies with WFA and it has not met that burden, we use BNSF's proposed cost for environmental clean-up and prevention.

²⁵³ BNSF Reply Narr. III-D-187.

²⁵⁴ WFA Reb. Narr. III-D-170.

²⁵⁵ BNSF Reply Narr. III-D-187-88.

k. Yard Cleaning

The parties agree that the LRR's yards would need to be cleaned annually. They agree on the base unit cost, but BNSF argues that it would take more days to perform the yard cleaning than WFA proposed, thus increasing the unit cost.²⁵⁶ WFA argues on rebuttal that its unit costs were based directly on BNSF's contractor costs for cleaning the Guernsey Yard and therefore properly take into account cleaning times.²⁵⁷

Neither party submitted the BNSF contract upon which the base unit cost was derived. However, the parties agree that WFA derived its cost from BNSF's own data and BNSF has not explained why these data, which incorporated the time for cleaning the Guernsey Yard, are inaccurate. BNSF has not explained why the LRR's yard cleaning would take longer than BNSF's own yard cleaning or how the increased time would increase the unit cost. Accordingly, we use WFA's cost for yard cleaning.

l. Coal Dust

The parties agree that clean-up of coal dust on the LRR would need to be performed, but they differ on the cost for this task.

According to WFA, the LRR would use ballast undercutting to remove the coal dust. WFA states that undercutting is a process where the coal-covered ballast is "lifted, cleaned and replaced. Sufficient amounts of new ballast are then added in order to bring the track back to its original track elevation."²⁵⁸ WFA would capitalize most of this ballast undercutting cost, as does BNSF. According to WFA, BNSF's annual operating expense related to ballast is 4.13% of BNSF's capital investment in ballast. Therefore, WFA took 4.13% of the LRR's capital investment in ballast to determine the LRR's annual operating expense related to coal dust cleanup of ballast.²⁵⁹

WFA has failed to provide adequate support this cost. No cost for ballast undercutting is found in its workpapers.²⁶⁰ In any event, WFA's methodology for calculating this cost is problematic. The fact that BNSF's cost for ballast maintenance is 4.13% of its capital ballast investment does not necessarily mean that the LRR's ballast maintenance cost would constitute an equivalent percentage. Because the LRR would be a smaller system, it might not necessarily have the same degree of economies of scale that a larger carrier such as BNSF, so that the LRR's cost might be higher.

BNSF derived this cost by taking the cost incurred jointly by BNSF and UP for their 2003-2004 annual coal dust clean-up project and annualizing it over 5 years. Because this cost is

²⁵⁶ BNSF Reply Narr. III-D-189.

²⁵⁷ WFA Reb. Narr. III-D-173.

²⁵⁸ WFA Reb. Narr. III-D-175 n.83.

²⁵⁹ WFA Reb. Narr. III-D-175-76.

²⁶⁰ WFA Reb. e-WP. "Spot Maint Rebuttal.xls," tabs "Spot Maintenance Summary" and "Contract Work."

supported, it is the best evidence of record here. However, as WFA notes, because the LRR would carry less traffic than is carried over BNSF's joint line with UP, it should experience less coal dust, thereby decreasing its coal dust clean-up cost. WFA points to the fact BNSF bills a portion of the cost for clean-up of coal dust to UP.

We agree with WFA and therefore reduce the cost submitted by BNSF by the percentage reduction in MGT over the line.²⁶¹

m. Stabilization

BNSF argues that WFA has not properly accounted for the additional cost of various stabilization issues that the LRR would experience at certain locations. Each of these stabilization issues is discussed separately.

i. Tunnels No. 1 and No. 3

BNSF argues that it incurs maintenance costs for the tunnel at MP 96.85, west of Guernsey (Tunnel No. 1), and for the tunnel at MP 101.5 west of Stokes, WY (Tunnel No. 3). Specifically, BNSF states that on Tunnel No. 1, maintenance is needed for the timber walls, arch sets, ballast, and drainage system, and on Tunnel No. 3, maintenance is needed for the tunnel lining and drainage system.²⁶² WFA argues that, because on the LRR's system these tunnels would be constructed with steel arch supports, concrete, and modern drainage, these additional maintenance costs would not be necessary.²⁶³ For reasons discussed in **Appendix D—Road Property Investment, Section D. Tunnels**, we reject WFA's claim that the LRR could construct these tunnels with steel and concrete. Because these tunnels would have to be built using timber, a maintenance cost is necessary and we therefore use the only evidence of this cost, which has been presented by BNSF.

ii. Tunnel No. 2 (Open Cut)

BNSF's original Tunnel No. 2 on the Canyon Subdivision at MP 98.15, west of Guernsey (Tunnel No. 2) was "daylighted" in 1998, and WFA has chosen for the LRR to construct this portion of its system as a large open cut, similar to BNSF's now daylighted tunnel. BNSF argues that it needs to annually perform repairs to its "hard rock bolts" and "shot-crete," which protect against erosion of the steep walls.²⁶⁴

²⁶¹ Accord Otter Tail at C-28 ("According to Otter Tail, the tonnage of the OTRR would be 107 MGT, or approximately 30% of the traffic that BNSF and UP currently move on the Orin Line (350 MGT). Accordingly, our analysis here includes only 30% of BNSF's proposed clean-up costs for coal dust build-up and coal spills.").

²⁶² BNSF Reply Narr. III-D-192.

²⁶³ WFA Reb. Narr. III-D-176-77.

²⁶⁴ BNSF Reply Narr. III-D-192. Shot-crete is a process where concrete is projected or "shot" under pressure, using a feeder or "gun," onto a surface to form structural shapes including walls, floors, and roofs.

As WFA notes, BNSF has not explained why its slope protection has not been effective. WFA suggests that the ineffectiveness may have been the result of the fact that BNSF had to convert an existing tunnel into a daylighted tunnel. We agree with WFA that, because the LRR would design and construct the open cut from scratch, it would not likely face the same difficulty.²⁶⁵

Moreover, as WFA points out, BNSF has presented evidence of only a single, capitalized maintenance expenditure for the open cut. Thus, BNSF has not shown that maintenance of the open cut would be an annual expense. WFA added an extra cost to solidify the cut walls as a one-time expense to its initial investment cost in constructing the open cut, so as to avoid the need for constant repairs.²⁶⁶ This is a reasonable approach and, as discussed in **Appendix D-Road Property Investment, Section. B—Roadbed Preparation, Item 2.b.ii.**, we use WFA's construction cost for the open cut tunnel, including its additional investment to account for BNSF's repairs. We therefore conclude that no annual maintenance cost would be required.

iii. Wendover Canyon

BNSF claims that spot maintenance is needed for the track that runs between Stokes and Cassa, WY, because this segment suffers from falling rocks.²⁶⁷ WFA notes that BNSF's workpaper in support of this cost lacks any supporting details. WFA argues that removal of debris on this segment would be accomplished by the LRR ditching crew that WFA proposed (which we use here).²⁶⁸ We agree and find that no additional cost would be necessary.

L. Insurance

WFA calculated an insurance expense—3.59% of total operating expenses—based on BNSF's 2003 Annual Report R-1.²⁶⁹ BNSF argues that larger Class I railroads can obtain lower insurance rates than the LRR could obtain because Class I railroads self-insure for the first \$25 million.²⁷⁰ Accordingly, BNSF would have us use a higher rate (4.28%) for the LRR, based on statistics showing insurance costs for 2003 and 2004 for Class I railroads earning less than \$1 billion in annual revenues.²⁷¹

BNSF's evidence of insurance costs is the best evidence of record. However, that evidence shows a downward trend in insurance rates, with the most recent rate (for 2004) being 3.20% of total operating expenses. We use this latest figure here. See Otter Tail at C-29.

²⁶⁵ WFA Reb. Narr. III-D-177-78.

²⁶⁶ See WFA Reb. Narr. III-F-55.

²⁶⁷ BNSF Reply Narr. III-D-193.

²⁶⁸ WFA Reb. Narr. III-D-179.

²⁶⁹ WFA Open. Narr. III-D-130.

²⁷⁰ Id.

²⁷¹ BNSF Reply Narr. III.D-200.

APPENDIX D—LRR ROAD PROPERTY INVESTMENT

This appendix addresses the evidence and arguments of the parties concerning what it would cost to build the LRR. **Table D-1** summarizes the parties' cost estimates associated with that construction, as well as the numbers used in our analysis.

Table D-1
LRR Construction Costs

	WFA	BNSF	STB
Land	\$3,371,726	\$7,336,477	\$4,896,267
Roadbed Preparation	159,335,387	455,743,076	164,350,047
Track	306,242,050	409,117,290	328,090,509
Tunnels	28,660,776	28,661,079	28,661,337
Bridges	48,374,880	55,873,389	48,476,477
Signals & Communications	58,145,736	68,820,468	59,547,331
Building & Facilities	42,010,771	51,647,407	34,384,744
Public Improvements	19,456,288	33,132,777	18,124,693
Mobilization	19,905,759	33,952,731	20,475,664
Engineering	66,222,589	110,299,549	68,163,514
Contingencies	66,222,589	124,724,777	77,027,432
TOTAL	\$817,948,552	\$1,379,309,020	\$852,198,015

A. Land

The only dispute between the parties regarding acreage regards the amount of land needed for the LRR's yards. For reasons discussed below, we also adjust the amount of land the LRR would need for ROWs. **Table D-2** summarizes the acreage used by the parties and our findings.

Table D-2
LRR Real Estate Acreage

	WFA	BNSF	STB
ROW	2,641.41	2,641.41	2,725.84
Easements	0	0	0
Yards	139.73	179.05	139.73
Microwave Tower Sites	69.00	69.00	69.00
TOTAL	2,850.14	2,889.46	2,934.57

The parties disagree significantly on the cost of land need for the Orin Line ROW, yards, and microwave tower sites. **Table D-3** summarizes the parties' land values and our findings.

Table D-3
LRR Real Estate Costs

	WFA	BNSF	STB
ROW (non-Orin Line)	\$653,554	\$653,554	\$653,576
Orin Line	2,333,016	3,608,036	3,743,884
Easements	0	0	0
Yards and Other Facilities	261,317	2,897,467	321,387
Microwave Tower Sites	123,840	177,420	177,420
TOTAL	\$3,371,726	\$7,336,477	\$4,896,267

1. Right-of-Way

a. Acreage

The parties generally agree on the acreage necessary to construct the LRR, including the width of the LRR right-of-way (ROW), which would be 100 feet. The only disagreement is over whether the ROW would ever exceed this width. As discussed below in **Section B.5**, we adjust WFA's acreage for three LRR sections to account for a wider ROW in lieu of extensive retaining walls.

b. Cost

The parties agree on the land values for the ROW. The only issue on which the parties disagree is the value of the assemblage factor that should be applied to the land cost for segments north of Bridger Junction.

An assemblage factor is the additional premium associated with having to procure strategically located property in order to create a continuous, uninterrupted ROW. WFA proposes to use an assemblage factor of 4.3. BNSF argues that a multiplying factor of 6.65 should be used to account for assemblage, consistent with prior SAC cases, most notably, West Texas, 1 S.T.B. at 703 n.144.²⁷² WFA argues that, although the Board has accepted BNSF's assemblage factor in prior cases, that factor is subject to challenge. WFA states that it was unable to make such a challenge, however, because BNSF failed to provide the materials supporting the 6.65 assemblage factor on discovery.²⁷³

WFA's assemblage factor is significantly flawed and thus unreliable. WFA developed its factor by taking an average of values from four sources, but WFA's selection of data from these sources, as well as the sources themselves, are problematic. First, WFA relies on an article that discusses "enhancement factors,"²⁷⁴ but an enhancement factor is different from an assemblage

²⁷² BNSF Reply Narr. III-F-29-30.

²⁷³ WFA Reb. Narr. III-F-25-26.

²⁷⁴ WFA Open. Exh. III-F-2 at 320-26, 383.

factor, as the enhancement factor accounts for the premium a party would pay for already-assembled corridor.²⁷⁵ Moreover, WFA selectively picks data from this article, while ignoring other relevant data, and the data that it does rely on appear to be for sales of corridors for non-rail purposes. WFA's second source is a set of values taken from the acquisition of a ROW in Wyoming,²⁷⁶ but WFA relies on only the lowest calculated value (derived from a subset of the data points in this set), while ignoring other relevant data points, which it wrongly claims are not representative of the Orin Line. The third and fourth sources are based on the acquisition of corridors for gas pipelines,²⁷⁷ but as WFA's own materials on these acquisitions clearly imply, an assemblage factor for a gas pipeline corridor would be less than an assemblage factor for a rail corridor, due to the less stringent attributes needed for a gas pipeline.²⁷⁸

Although BNSF did not supply the data underlying its 6.65 assemblage factor, this factor was relied on by the Board in West Texas (1 S.T.B. at 703 n.114) and affirmed in Xcel (at 88) and was based on a cumulative analysis of the actual historical and quantitative evidence on the same real estate at issue here. Thus, while we agree with WFA that a finding by the Board in a prior case generally does not preclude a challenge and re-examination of that finding in a subsequent proceeding, in this instance, even if BNSF had provided the underlying data, WFA would almost certainly have arrived at the same value. Moreover, it is unlikely that the assemblage factor would have changed over time. According to WFA's own witnesses, an adjustment for time is not necessary when computing assemblage factors of past acquisitions, as most factors that affect the assemblage factor (such as the physical attributes of the land) do not change. The only factor that is likely to change is demand, and in today's world of constrained capacity, it is likely that demand for the Orin Line corridor would actually be greater than it was when BNSF purchased the ROW in 1978, which would mean that the assemblage factor could be higher than 6.65. Therefore, we apply the 6.65 assemblage factor. See Otter Tail at D-4.

2. Yards

a. Acreage

The parties agree on the acreage that would be required to construct the Donkey Creek and South Logan yards, but dispute the acreage that would be required to construct the LRR's Guernsey Yard. BNSF would increase the acreage that WFA proposed on opening to account for facilities that BNSF alleges WFA either omitted or undersized, including a service road around the yard, additional ditches, and an additional 0.68 track miles at the yard's locomotive repair shop.²⁷⁹ However, because we have concluded that WFA's proposals regarding these

²⁷⁵ WFA Open. Exh. III-F-2 at 316.

²⁷⁶ WFA Open. Exh. III-F-2 at 373-74.

²⁷⁷ WFA Open Exh. III-F-2 at 41.

²⁷⁸ WFA Open Exh. III-F-2 at 312, 317-18, 325.

²⁷⁹ BNSF Reply Narr. III-F-30-31.

items are sufficient (as discussed in various sections of this appendix), there is no need to increase its proposed acreage.²⁸⁰

b. Cost

There is a sizable difference between the parties' per-acre cost of the land needed for the Guernsey Yard. WFA proposes \$1,250 per acre based on comparable sales, while BNSF relies on the figure it proffered in TMPA, \$17,000 per acre, but without the supporting data it submitted in that case.²⁸¹ WFA provided a considerable quantity of sales documentation supporting its costs.²⁸² BNSF's criticisms of WFA's comparable sales are without merit. WFA's exclusion of sales in the town of Guernsey (some of which were developed lots) from its analysis was proper because those sales involved different types of property than the land being acquired for the Guernsey yard. Moreover, the town's effect on property values for the Guernsey yard land would nonetheless be accounted for in WFA's other comparable sales, which involved parcels nearby or adjacent to the town. (We note that BNSF has not provided any evidence that the town's proximity to the rail yard causes an increase or decrease in property values for yard property.) Accordingly, we use WFA's per-acre cost for land needed to build the Guernsey yard as the best evidence of record.²⁸³

We note that both parties have applied their respective assemblage factors to the acreage for the Donkey Creek and South Logan yards (but not the Guernsey yard). Although we do not believe that this is necessarily required, because the parties have agreed to do so, we include this additional cost.²⁸⁴

3. Microwave Tower Sites

The parties agree on both the number of acres that would be required for the placement of microwave towers and the per-acre value of the land. However, they reach different overall

²⁸⁰ We note that the acreages provided by WFA in its exhibit of land valuation (WFA Open. Exh. III-F-2 at 35) do not match the acreages provided in its e-WP. for track miles (WFA Open. e-WP. "Track Miles Worksheet.xls"). We accept the acreages from the land valuation exhibit, as this evidence is directly related to the issue at hand and these are the acreages used by WFA in its calculation of land costs.

²⁸¹ BNSF Reply Narr. III-F-31.

²⁸² See WFA Open. Exh. III-F-2 at 126 & WFA Reb. Narr. III-F-23-24.

²⁸³ There is no inconsistency in our findings regarding the use of evidence from prior cases for the ROW assemblage factor and yard costs. The assemblage factor from West Texas was based on actual evidence, but, as stated in TMPA, 6 S.T.B. 699, the Board took BNSF's yard cost in that case only because it was merely the best evidence of record.

²⁸⁴ As previously noted, the assemblage factor for the Orin Line was determined in West Texas. However, it is unclear from that decision whether the assemblage factor applied only to land for the ROW, or was also applied to land for yards along the line.

costs due to differences in their assemblage factors. For the same reasons discussed in **Section 2.b. above**, we apply BNSF's assemblage factor to this land.

B. Roadbed Preparation

Table D-4
LRR Roadbed Preparation Costs

	WFA	BNSF	STB
Clearing, Grubbing	\$142,255	\$387,221	\$377,927
Earthwork	132,449,662	169,945,901	136,886,936
Lateral Drainage	63,826	63,826	63,826
Culverts	14,365,734	18,994,439	14,514,315
Retaining Walls	53,637	53,637	53,637
ROW Retaining Walls	0	237,526,483	0
Rip Rap	605,565	609,272	605,565
Relocating and Protecting Utilities	1,846,310	1,907,133	1,846,310
Seeding/Topsoil Placement	3,050,992	3,083,289	3,050,992
Water for Compaction	3,866,867	4,414,714	4,051,509
Road Surfacing	481,596	481,596	481,596
Environmental Compliance	2,225,061	2,248,616	2,225,061
Waste Excavation	183,882	210,418	192,373
Total	\$159,335,388	\$439,926,545	\$164,350,047

1. Clearing and Grubbing

The parties agree on the amount of acres that would need to be cleared and grubbed for those line segments replicated by the LRR and that are covered by the Interstate Commerce Commission Engineering Reports (Engrg Rpts), which include the segments from Donkey Creek to Orin Junction, from Eagle Butte Junction to Campbell, and from Reno to Black Thunder. The parties also agree on the applicable unit cost. However, the parties dispute whether a cost for clearing and grubbing should be included for the LRR's Campbell, Orin, and Reno Subdivisions—segments which were constructed after the Engrg Rpts were conducted. WFA did not include clearing and grubbing costs for those segments because it claims that BNSF's construction documents for those segments show that no such costs were incurred.²⁸⁵

BNSF argues that the documents relied on by WFA included the costs for clearing and grubbing within the excavation costs, and that is why no specific line-item cost for clearing and grubbing is found in these documents. BNSF contrasts this to the documentation for its current Shawnee-to-Walker Third Main project, which separates the costs for clearing and grubbing

²⁸⁵ WFA Reb. Narr. III-F-31.

from the excavation costs. BNSF notes that WFA has relied on documentation from two different projects for excavation costs and clearing and grubbing costs, in a way that avoids the clearing and grubbing costs from either project. For excavation costs, WFA relied on the Shawnee-to-Walker documentation, which excluded clearing and grubbing costs. For clearing and grubbing costs, however, WFA relied on the Campbell, Orin, and Reno documentation, which excluded clearing and grubbing costs and instead included them within excavation costs.²⁸⁶

BNSF clearly incurred some cost to clear and grub the land over which the Campbell, Orin, and Reno Subdivisions were built. BNSF has adequately explained why its documentation for these segments did not list a cost for these items. Accordingly, we agree with BNSF that a cost for clearing and grubbing for the Campbell, Orin, and Reno subdivisions should be included. WFA has failed to provide evidence of clearing and grubbing quantities and unit costs for these segments. Therefore, we use BNSF's quantity and cost figures, which are based on information from the Shawnee-to-Walker project.

2. Earthwork

a. Specifications

i. Roadbed Width

The parties agree on a 24-foot roadbed width for those segments that existed at the time the Engrg Rpts were conducted. The parties do not agree, however, on the roadbed width for segments that were constructed after the Engrg Rpts. WFA uses a 24-foot wide roadbed, based on the width of BNSF's Canyon Subdivision.²⁸⁷ BNSF argues that these segments should be built with a 28-foot wide roadbed, the same as for these segments on its own system and the width it uses on its current construction projects. It claims that, although the Canyon Subdivision has a 24-foot roadbed, this segment was built before the Orin Line and has proven to be inadequate to handle coal trains.²⁸⁸

BNSF has failed to demonstrate that a 24-foot roadbed would be inadequate for the LRR. While a 28-foot roadbed might be a better choice, that fact alone does not demonstrate that a 24-foot roadbed is infeasible, especially given that BNSF continues to use 24-foot roadbeds for other segments of the LRR with similar traffic densities. See Otter Tail at D-7-8; Xcel at 90-91. We therefore use WFA's roadbed widths.

ii. Center-to-Center Track Spacing

The parties agree on the use of 25-foot track center spacing for adjacent tracks.

²⁸⁶ BNSF Reply Narr. III-F-33-34.

²⁸⁷ WFA Reb. Narr. III-F-43.

²⁸⁸ BNSF Reply Narr. III-F-42-44.

iii. Foundation Conditioning and Undercutting

BNSF includes a cost for foundation conditioning, noting that it incurred this cost on the Shawnee-to-Walker project, a source upon which WFA bases a significant amount of its earthwork costs.²⁸⁹ WFA does not include this cost in its evidence. It claims that the Shawnee-to-Walker project was a special circumstance that required foundation conditioning, but that this activity would not need to be performed on any of the LRR's lines. WFA also notes that the Engrg Rpts and BNSF's Orin Line and Campbell Subdivision construction documents do not indicate any quantity relating to a cost for foundation conditioning. If any foundation conditioning did occur on these two BNSF lines, WFA argues that the cost must have already been reflected in those lines' construction.²⁹⁰

We agree with WFA that this cost is unnecessary. BNSF has shown that it incurred this expense only on one of its segments (Shawnee-to-Walker), and WFA has demonstrated that the Shawnee-to-Walker project was a unique situation that would not be present on the replicated LRR segment.²⁹¹

BNSF also includes a cost for undercutting (excavation of unsuitable material), arguing that a cost for this activity was incurred for the original Orin Line construction. BNSF claims that this is demonstrated by the fact that the specifications for the construction include a heading for "Removal of Unsuitable Material." BNSF claims that undercutting was paid for at twice the unit price of excavation. Although the amount of undercutting that was required is not available, BNSF extrapolates the undercutting quantities from the Shawnee-to-Walker project to determine the quantity needed for the LRR's replicated Orin Line.²⁹²

BNSF, however, has not shown that it incurred a cost for undercutting on line segments other than the Shawnee-to-Walker project. Contrary to BNSF's claim, it is not clear from the document that BNSF refers to in support of this cost that undercutting was performed on the Orin Line, or, at least, was performed separately from the excavation process. For these reasons, we exclude the costs for foundation conditioning and undercutting from the SAC analysis.

iv. Side Slopes

The parties agree on the use of side slopes of 1.5:1.

v. Access Roads

Both parties base their earthwork quantities on BNSF's construction documents for the original lines that are being replicated and on the Engrg Rpts. According to WFA, these documents reflect the earthwork quantities associated with access roads and thus the cost for access roads is already accounted for, and there was no need to include a separate cost for this

²⁸⁹ BNSF Reply Narr. III-F-38-39.

²⁹⁰ WFA Reb. Narr. III-F-36-39.

²⁹¹ See WFA Reb. e-WP. "Walker-to-Shawnee cross-section.pdf."

²⁹² BNSF Reply Narr. III-F-39-41.

item. BNSF argues that 7-foot wide access roads would be inadequate, claiming that 13-foot wide access roads would be needed. BNSF therefore adjusts its costs to account for wider access roads. In addition, BNSF adds access roads to segments that WFA excluded.²⁹³

BNSF has provided no justification for why the access roads would need to be 13 feet. WFA has provided for 4-wheel drive vehicles for the maintenance and operating personnel, and it has shown that the cost for access roads is already included in the earthwork quantities (which are based on BNSF's original line construction documents and the Engrg Rpts). Thus, we are satisfied that there is no need to include an additional quantity or cost for access roads. We also reject BNSF's cost for additional access roads on other LRR segments, because WFA has shown that the cost for these roads is also included in BNSF's construction documents.

b. Grading Quantities

As noted, both parties base their earthwork quantities on the same source materials, specifically, BNSF documents for construction of the original lines and the Engrg Rpts. Accordingly, the parties agree on the grading quantities required for the main lines (with the exception of roadbed width, as discussed in **Section 2.a.1.** above), but disagree regarding the yards and interchange grading quantities.

i. Yard and Interchange Grading

The parties agree that the LRR would have three yards (Guernsey, Donkey Creek, and South Logan) and three additional interchange tracks to switch traffic with the residual BNSF (Campbell, Orin Junction, and Moba Junction, WY). The Guernsey Yard would be divided into two sections: Guernsey West and Guernsey East. The parties agree to the grading requirements for the Donkey Creek and Guernsey West yards, but not the Guernsey East and South Logan yards.

For the Guernsey East yard, BNSF agrees with WFA's earthwork quantities for the majority of the yard, but increases the quantity based on three alleged errors in WFA's yard design.²⁹⁴ On rebuttal, WFA corrected for two of the errors pointed out by BNSF (regarding its contour adjustments and the width of the shoulder on the outermost yard tracks), but challenges BNSF's other criticism.²⁹⁵ Specifically, BNSF notes that WFA failed to include any drainage ditches in the cut sections of the yard. BNSF argues that such a drainage ditch would be necessary to transport the water to the LRR's storm sewer; otherwise water would collect in the shoulder of the outermost track and lead to saturation of the subgrade. Thus, BNSF adds a 2-foot flat bottom ditch to the cut sections throughout this yard.²⁹⁶ WFA counters that, although it has

²⁹³ BNSF Reply Narr. III-F-44-46.

²⁹⁴ BNSF Reply Narr. III-F-48.

²⁹⁵ WFA Reb. Narr. III-F-50-51.

²⁹⁶ BNSF Reply Narr. III-F-48-49.

not determined the exact locations for the yard's entire storm drainage system, it has already accounted for the necessary amount of drains (based on the total square footage in the yard).²⁹⁷

Having reviewed the evidence, we agree with WFA's explanation that it has included the cost for the appropriate amount of drains that would be needed at the Guernsey East yard. No additional cost for a drainage ditch is therefore necessary.

BNSF also increases the earthwork quantity for the Guernsey East yard by 92,000 cubic yards to account for an access road and an increase to the mechanical track around the locomotive shop located there.²⁹⁸ WFA does not refute BNSF's additional quantity.²⁹⁹ As discussed in the **Facilities** section (below), we use WFA's increase for the mechanical track (0.05 miles), not BNSF's increase (0.68 miles). There is insufficient evidence to determine by how much this would decrease the earthwork quantity for the Guernsey East yard, but because the difference would be negligible, we use BNSF's overall quantity for this work. Accordingly, we include BNSF's additional quantity for this work.

For the South Logan Yard, BNSF argues that WFA incorrectly used 15-foot track center spacing and that 25-foot spacing should be used instead.³⁰⁰ WFA agrees that the spacing between the main line and the first yard track should be 25 feet, but argues that the spacing between the other yard tracks should remain 15 feet.³⁰¹ BNSF has not shown that 25-foot track center spacing would be needed between all yard tracks. Accordingly, we find WFA's use of 15-foot wide spacing acceptable. Any remaining differences between the parties' quantities for this yard are the result of differences in their roadbed widths. We have addressed and resolved this issue above. See Section 2.a.i.—Roadbed Widths.

ii. Tunnel No. 2 Open Cut

BNSF's original Tunnel #2 on the Canyon Subdivision was "daylighted" in 1998. Here, WFA has chosen to have this portion of the LRR system constructed as a large open cut, similar to BNSF's now-daylighted tunnel. BNSF agrees to WFA's general costs for this open cut, but includes two additional costs (for materials needed to construct an overpass and for a permitting fee to the Wyoming Division of State Parks) and uses a different cost index.³⁰²

On rebuttal, WFA agrees to the two additional cost items argued by BNSF, but objects to several aspects of BNSF's indexing. First, WFA argues that BNSF improperly uses both annual indexes from Means and monthly indexes from the *Engineering News Record*, a civil engineering journal. Second, WFA notes that, whereas BNSF begins indexing from June 1998, the correct starting point (based on the contractor's invoice) should be December 1998. Third,

²⁹⁷ WFA Reb. Narr. III-F-50.

²⁹⁸ BNSF Reply Narr. III-F-50.

²⁹⁹ See WFA Reb. Narr. III-F-49-51.

³⁰⁰ BNSF Reply Narr. III-F-51.

³⁰¹ WFA Reb. Narr. III-F-52.

³⁰² BNSF Reply Narr. III-F-51-52.

WFA claims that BNSF wrongly applied a construction cost index to a material item, rather than a material cost index. Finally, WFA argues that BNSF improperly indexed the cost for the permitting fee, even though there is no evidence that the cost of this fee has changed.³⁰³ The problems WFA has identified are all flaws with BNSF's indexing. Accordingly, we use WFA's indexing.

The parties also dispute whether an annual cost would be required to maintain the open cut. WFA argues that BNSF has presented evidence of only a single, capitalized maintenance expenditure for the open cut and thus argues that maintenance would not be an annual expense. Moreover, to avoid any need for continual maintenance, WFA includes an additional investment cost to reflect the steps taken by BNSF to solidify the cut walls.³⁰⁴ WFA bases this additional cost on BNSF's actual cost for the one-time repair work.

WFA is correct that BNSF has presented no evidence that the repairs it undertook to its open cut tunnel should be incorporated as an annual expense. Accordingly, we use WFA's revised plan to incorporate the cost of BNSF's repairs (indexed to the appropriate quarter) into the initial investment cost for construction of this open cut tunnel. See also

Appendix C-Operating Expenses, Section K—Maintenance-of-Way, Item 4.m.ii, for discussion of the maintenance of the open cut.

c. Unit Costs

The parties agree on the unit costs for common excavation. However, the parties' overall cost figures differ due to a disparity in their common earthwork quantities, which is the result of disagreements discussed and resolved above. Accordingly, we apply the agreed-upon unit cost to the common earthwork quantity as we have restated it, based on the conclusions we have reached in this section.

WFA based its loose rock and solid rock excavation costs on Means. BNSF agrees to all of WFA's loose rock excavation costs, with one exception. BNSF argues that WFA does not support its use of a 3 cubic yard (CY) power shovel to load ripped and bulldozed rock into trucks. Instead, BNSF asserts that a 3 CY hydraulic excavator should be used.³⁰⁵ Although a hydraulic excavator may be more efficient for loading the loose rock into trucks, BNSF has not shown that use of a power shovel is infeasible. See Xcel at 95-96; TMPA, 6 S.T.B. at 704. Accordingly, we rely on WFA's loose rock excavation equipment specifications and costs.

The differences between the parties' solid rock excavation costs are more significant. In calculating its blasting cost, WFA used an average of the Means costs for "drilling and blasting over 1500 CY" and "bulk drilling and blasting."³⁰⁶ BNSF objects to the inclusion of a bulk drilling and blasting cost because it claims that this cost applies only when the amount of blasting is great enough to generate economies of scale. BNSF claims that the blasting required

³⁰³ WFA Reb. Narr. III-F-53-54.

³⁰⁴ See WFA Reb. Narr. III-F-54-55.

³⁰⁵ BNSF Reply Narr. III-F-53-55.

³⁰⁶ WFA Open. Narr. III-F-40.

for the LRR would not be great enough to achieve the economies needed for the lower cost bulk drilling and blasting, citing as support the fact that the LRR would require only 10,885 CY of blasting per mile.³⁰⁷ BNSF would instead rely solely on the cost for drilling and blasting over 1,500 CY.

WFA responds that, although the average amount of blasting per mile would be low, significant amounts of the blasting would be concentrated in a few spots, and thus the LRR could achieve the economies needed to obtain the Means bulk drilling and blasting costs. It claims, for example, that 925,000 CY of blasting (approximately 62% of the totaling blasting required for the LRR system) would be for the Guernsey East yard, which is only 2 miles in length.³⁰⁸ Because the majority of the solid rock excavation and blasting requirements for the LRR would be concentrated to small geographic areas, we use WFA's unit costs for bulk drilling and blasting. See Otter Tail at D-12-13; Xcel at 97.

BNSF claims that, after solid rock blasting and drilling has taken place, a portion of the remaining material, specifically, large boulders (those greater than 24 inches in size), would require additional drilling and blasting because large boulders are not suitable to be used as fill and are too large to be hauled away by trucks. BNSF therefore includes additional costs for secondary blasting. BNSF also substitutes WFA's Means costs to excavate and load the blasted rock with Means costs to excavate and load boulders.³⁰⁹

WFA claims that large boulders would not be encountered if blasting were performed correctly. Moreover, it claims that Means personnel confirmed that the Means blasting cost assumes this fact.³¹⁰ WFA also argues that BNSF's substituted excavation and loading costs are inappropriate. First, WFA argues that BNSF's substituted excavation cost is a cost for excavating boulders that have not been blasted, and thus, is not applicable here. Second, WFA notes that, according to Means, BNSF's substituted loading cost for boulders is for boulders that are ½ CY. WFA argues that BNSF fails to explain why WFA's loading cost, which is based on a 3 CY shovel, would be insufficient to load ½ CY boulders.³¹¹

WFA has demonstrated that the Means blasting cost assumes that no secondary blasting is required and thus has refuted BNSF's claim that secondary blasting would be needed. See Otter Tail at D-13; Xcel at 97. Moreover, BNSF has not shown why WFA's reliance on Means costs for excavating and loading the blasted rock is infeasible, especially since we have found that the initial blasting would produce material small enough to be excavated and loaded using less-expensive mechanical equipment. Accordingly, we use WFA's solid rock blasting and removal costs.

³⁰⁷ See BNSF Reply Narr. III-F-59 n.61.

³⁰⁸ See WFA Reb. Narr. III-F-62.

³⁰⁹ BNSF Reply Narr. III-F-59-62.

³¹⁰ See WFA Reb. e-WP. "Means Solid Rock Inquiry.pdf."

³¹¹ WFA Reb. Narr. III-F-64-65.

The parties agree on the unit cost for borrow material. The parties also agree that a separate cost for fine grading is unnecessary, as the cost for this activity is already included in the common excavation costs agreed to by the parties.

3. Drainage

a. Lateral Drainage

The parties agree on the costs for lateral drainage.

b. Yard Drainage

The parties generally agree on yard drainage quantities and unit costs (including ditches), with the exception of BNSF's inclusion of an added cost for foundations and inverts for the catch basins. WFA claims that this cost is unnecessary.³¹² Because BNSF has provided no explanation or evidence demonstrating that foundations and catch basins would be needed,³¹³ we do not include this cost.

The only other disagreement between the parties regarding yard drainage concerns whether to include drainage ditches in the cut sections of the Guernsey East yard, an issue addressed above, **Item 2.b.ii.**

4. Culverts

On rebuttal, WFA makes several corrections to its culvert costs based on errors identified by BNSF in its reply. However, the parties continue to disagree on a number of other culvert factors.

BNSF claims that WFA improperly provided for corrugated metal pipe instead of structural plate pipe for culverts that are between 90 and 144 inches in diameter. Additionally, for those culverts where BNSF agrees that use of corrugated metal pipe would be proper, BNSF claims that WFA specifies pipes with gauges that are not strong enough to withstand the amount of cover that would be needed for the LRR's replicated Orin and Campbell Subdivisions.³¹⁴ WFA claims, however, that corrugated metal pipe can replace structural plate pipe culverts. In support of its selected culvert materials, WFA provides data that the pipes would never be buried beneath an amount of cover that the pipe cannot withstand.³¹⁵ As WFA's choice of materials is feasible and supported, we use its substitution of corrugated metal pipe and lower gauges for certain culverts and its corresponding unit costs.

BNSF also disputes the labor, equipment, profit, and overhead costs per linear foot for those corrugated metal pipes with diameters greater than 84 inches. WFA relied on Means to

³¹² WFA Reb. Narr. III-F-69.

³¹³ See BNSF Reply Narr. III-F-52.

³¹⁴ BNSF Reply Narr. III-F-67-73.

³¹⁵ See WFA Reb. e-WP. "Height of Cover.pdf" & e-WP. "Cover Versus Pipe Size.xls."

determine these category costs, but BNSF notes that Means provides these costs only up to pipes 72 inches in diameter. Thus, it claims that WFA improperly applied the 72-inch costs to those pipes that are between 72 and 90 inches. Moreover, for those pipes 96 inches or greater, BNSF notes that WFA made an upward cost adjustment to the Means 72-inch costs, but argues that WFA provides no explanation of how it made this adjustment.³¹⁶ Accordingly, for those culverts that would need to be greater than 84 inches in diameter, BNSF used structural plate pipes.

On rebuttal, WFA explains that the labor, equipment, profit, and overhead costs for pipes 96 inches or greater would essentially be no different than for 90-inch culverts (based on the type of equipment its crew would use), and it cites to Means in support.³¹⁷ According to WFA, the only difference would be that some additional time might be needed to install the larger pipes, which is why it included a 15% additive to the labor and equipment costs.³¹⁸

We agree with WFA's assessment (based on its Means comparison) that the labor, equipment, profit, and overhead costs for pipes 96 inches or greater would be similar to those for 90-inch pipes, with the exception of the additional labor time, but we agree that WFA's 15% additive should sufficiently cover this additional minor cost. We therefore accept WFA's costs for these four categories as the best evidence of record.

Finally, BNSF includes an additional cost for treating some of the piping with a protective bituminous coating.³¹⁹ However, we agree with WFA that bituminous coating is not necessary given the long life expectancy of the pipes.³²⁰

5. Retaining Walls

The parties agree on the quantity and cost for existing retaining walls that would be replicated on the LRR system. However, the parties disagree as to whether a cost should be included for new retaining walls (which the parties refer to as "ROW retaining walls"). This dispute is significant, because BNSF's inclusion of this cost accounts for more than 20% of its total Road Property Investment costs.

BNSF argues that, because the WFA proposes that the ROW would not exceed 100 feet in width, the LRR would have to build ROW retaining walls in some sections where the elevation of the land is higher than the ROW.³²¹ WFA responds that BNSF has misinterpreted its proposed ROW widths. Specifically, WFA notes that it stated on opening that the ROW would average 100 feet in width, but would not necessarily be limited to this amount. Moreover, WFA argues that, even if the Board were to find that some LRR segments would need additional width, the proper solution (under SAC principles) would be the much less costly option of

³¹⁶ BNSF Reply Narr. III-F-73.

³¹⁷ WFA Reb. Narr. III-F-73.

³¹⁸ WFA Reb. Narr. III-F-73.

³¹⁹ BNSF Reply Narr. III-F-73-74.

³²⁰ WFA Reb. Narr. III-F-74.

³²¹ BNSF Reply Narr. III-F-83.

purchasing the land needed in lieu of building additional retaining walls. According to WFA, under BNSF's evidence, this would cost approximately \$575,000, much less than the \$237.5 million BNSF claims it would cost to construct retaining walls.³²²

We agree with BNSF that the line segments it identifies are not wide enough and thus would require a modification in order to be feasibly constructed.³²³ At the same time, we agree with WFA that the proper modification is not the construction of expensive retaining walls, but rather the purchase of additional land so as to increase the width of the ROW. Accordingly, for segments with widths greater than 100 feet, we restate the value of the real estate by a ratio of the resultant segment width to the nominal 100-foot segment width. This is the same methodology the Board employed in FMC (at 112).

6. Rip Rap

Rip rap are large stones placed at the ends of drains and culverts to slow and deflect drainage. The parties agree to the unit cost, but disagree over the quantity due solely to minor differences in their overall route miles. Because we use WFA's proposed system configuration, including route miles, we use its total rip rap costs here.

7. Relocating and Protecting Utilities

The parties agree on the cost of relocating and protecting utilities along the Orin, Campbell, and Reno Subdivisions with a few minor exceptions. First, BNSF applies the agreed-upon cost to an additional 1.58 route miles. As noted, we use WFA's proposed system configuration and thus reject application of this cost to these additional miles. Second, WFA objects to BNSF's inclusion of costs for two utility relocations because BNSF's spreadsheets reflect no relocation. A review of the BNSF spreadsheet shows that WFA is correct.³²⁴ We therefore use only the agreed-upon cost.

8. Seeding/Topsoil Placement

BNSF and WFA generally agree on the costs for seeding and topsoil placement, except for a slight difference caused by differences in their route miles. Again, because we use WFA's route miles, we use its costs for this item.

³²² WFA Reb. Narr III-F-82-86.

³²³ These segments include Eagle Butte Junction to Campbell, Donkey Creek Junction to Reno, and Reno to Bridger Junction. No modification is needed for the Reno to Black Thunder portion because, after our adjustments, it would not be wider than 100 feet.

³²⁴ See BNSF Reply e-WP. "III F 2 utilities.xls," worksheet "Utilities," rows 4 and 6, where the entries are listed as "None."

9. Water for Compaction

The parties agree on the unit cost for water for compaction, but differ in the quantity due to disagreements over track miles, roadbed width, and access road width. We use WFA's evidence for these disputed items and our restated excavation quantities to calculate the costs.

10. Road Surfacing

The parties agree on both the unit costs and quantities for road surfacing.

11. Environmental Compliance

There is a slight difference in the parties' costs for environmental compliance, once again the result of their varying route miles. We use WFA's overall cost, based on our use of its system configuration.

12. Waste Excavation

The parties agree on the unit costs for the additional land needed for disposal of excess excavation (waste) material, but differ in overall costs because of a disparity in earthwork quantities. We restate the waste excavation cost based on our restated earthwork quantity.

C. Track Construction

A variety of materials would be needed to assemble the tracks of the LRR. **Table D-5** summarizes the cost estimates associated with this aspect of constructing the LRR.

Table D-5
Track Construction

	WFA	BNSF	STB
Sub-ballast & Ballast	\$61,378,636	\$100,125,924	\$71,129,475
Geotextile Fabric	284,481	420,634	360,833
Ties	52,284,865	59,863,673	51,978,987
Rail	52,208,331	64,228,429	57,746,330
Other Track Materials	29,501,216	26,784,312	30,380,156
Turnouts	22,368,027	24,776,871	22,537,910
Labor	88,216,494	132,917,447	93,956,818
TOTAL	\$306,242,050	\$409,117,290	\$328,090,509

1. Ballast

The parties agree on the depth of ballast (8 inches on main lines, set-out tracks and mines, and 6 inches on yard track). The parties also agree that granite ballast would be used, and they agree on the sources from which this ballast would be obtained and the points to which the ballast would be delivered. However, the parties disagree over the amount of ballast that would be required for the LRR. The difference in quantity is due to the fact that BNSF proposes using concrete ties for some lines, which would require additional ballast, and BNSF's claim that WFA

made errors in its calculations, such as double counting the ballast quantities for set-out, helper, and interchange track.³²⁵

On rebuttal WFA agreed that it made errors in its opening calculations and agreed to correct them. However, a review of WFA's rebuttal spreadsheets shows that it made errors correcting its errors.³²⁶ As a result, there are still mistakes regarding WFA's track lengths for set-out, helper, and interchange tracks as applied to the ballast quantities. Accordingly, we recalculate track lengths and apply the correct track lengths to our calculation of WFA's ballast quantity, but we do not add to the quantity to account for the use of concrete ties, for reasons discussed below, **Item 4.a.**

The parties also concur on the unit cost and transportation costs, but several discrepancies between their narratives and their spreadsheets remain. For example, both parties include a cost of trucking ballast from Guernsey Stone Quarry (Guernsey Stone), even though the parties agree that no ballast would be obtained from this source. WFA also failed to use the indexed cost for ballast in its overall construction totals.³²⁷ Ultimately, BNSF uses the unit cost identified in its narrative and the source documents, and WFA has accepted that unit cost on rebuttal.³²⁸ (We adjust the parties' ballast costs so that they are consistent with their agreed-upon factors.)

2. Subballast

a. Source

The parties dispute the sources from which the LRR would obtain subballast to construct its lines. WFA states that the LRR would obtain subballast from Guernsey Stone, as well as from a supplier in Moorcroft, WY. BNSF notes, however, that WFA did not identify the Moorcroft source and simply uses the Guernsey Stone price for both sources. BNSF substitutes Granite Canyon (also used by the parties for regular ballast) as the second source for subballast.³²⁹ On rebuttal, WFA identifies the Moorcroft supplier as First Energy Service Company (First Energy), but acknowledges that it improperly used the unit costs from Guernsey Stone for both suppliers, even though the First Energy cost is higher.³³⁰ WFA therefore offered new evidence from First Energy.

³²⁵ BNSF Reply Narr. III-F-95-96, 99.

³²⁶ WFA calculates ballast using the aggregate lengths of track grouped as either successive parallel main lines or by track function. WFA initially classified the lengths of some tracks as both parallel main lines and by track function, which resulted in an overcount of track lengths. WFA reclassified the tracks so that no track was double counted, but in doing so, placed some of the tracks in the wrong class and omitted some track.

³²⁷ See WFA Reb. e-WP. "III – F TOTAL.xl."

³²⁸ See WFA Reb. III-F-90 n.12.

³²⁹ BNSF Reply Narr. III-F-98.

³³⁰ WFA Reb. Narr. III-F-92-93.

WFA's attempt to offer evidence regarding First Energy for the first time on rebuttal is improper, because BNSF is unable to respond to this evidence. We therefore cannot accept WFA's evidence and we use BNSF's substitution of Granite Canyon for First Energy and the costs (i.e., unit cost and transportation cost) that result from this change.

b. Quantity

The parties agree to the depth of subballast that would be needed on main lines (12 inches) and on set-out tracks, yard tracks, and mine leads (6 inches). However, there is disagreement over the quantity of subballast that would be required, due to a disparity in the parties' factor for converting tons of ballast to cubic yards. In its reply, BNSF notes that WFA failed to account for compaction, which would raise the conversion factor.³³¹ On rebuttal, WFA agrees to incorporate compaction into its conversion factor, but argues that BNSF's conversion factor is still overstated, because it also takes into account other components that should be excluded.³³²

We agree that BNSF's compaction value is problematic because, as noted by WFA, BNSF has not explained how much of its compaction value is attributable to other components. WFA's compaction value, on the other hand, properly excludes these other components and is sufficiently supported. Accordingly, we use WFA's conversion factor, including its compaction value.

We note that some variation in quantity is also caused by the error in WFA's track length for interchange, set-out and helper tracks (discussed under **Ballast**). Again, we make the appropriate correction to subballast quantities.

c. Cost

The parties agree on the unit cost of subballast from Guernsey Stone. WFA also proposes to obtain subballast from First Energy in Moorcroft, but as discussed above, we use BNSF's proposal to substitute Granite Canyon as the second source for subballast and the resultant unit and transportation costs.

The parties disagree over the cost of transporting subballast from Guernsey Stone. Under WFA's plan, it would be transported from the quarry to a connection with the LRR's main line at MP 94.1, where it would be dumped for use in the construction of the surrounding segments.³³³ BNSF argues that the subballast would need to be shipped from the quarry to the material delivery point at the Guernsey Yard, a farther 2.7 miles from WFA's proposed dump point at MP 94.1. Thus, BNSF includes the cost to truck the subballast this extra 2.7 miles.³³⁴

³³¹ BNSF Reply Narr. III-F-100.

³³² WFA Reb. Narr. III-F-94-95.

³³³ WFA Reb. Narr. III-F-93-94.

³³⁴ BNSF Reply Narr. III-F-97-98.

WFA is correct that it would be more efficient to have the subballast dumped at MP 94.1, rather than truck it an additional 2.7 miles simply to be dispersed on the route from which it just traveled. On the other hand, BNSF's argument is premised on the long-held SAC-case practice of having a SARR's materials shipped to a railhead or yard where the other track construction materials are delivered.

WFA has not shown that dumping the subballast at MP 94.1 is feasible. Specifically, it does not address whether the ROW would be wide enough to stockpile the subballast (a doubtful proposition since the ROW would only be 100 feet wide), or whether the subballast could be practicably unloaded and stored at this spot. The purpose of establishing a railhead is to create a delivery point where the unloading and storage of track construction materials can be done in a safe and practical manner. Without evidence that this could be accomplished at another area, or that the area contains sufficient space for stockpiling, the LRR would need to ship the materials to an established delivery point. As a result, we agree with BNSF that the subballast would be transported to the Guernsey Yard.

In any event, WFA has not provided a cost for transporting the subballast from the quarry to MP 94.1. There currently exists an industrial track from the LRR's proposed main line at MP 94.1 to the quarry, but WFA has not stated that the LRR would use this lead to transport the ballast. Nor can we determine whether the industrial track would be a residual-BNSF segment, as WFA has provided no information regarding whether the track is owned by BNSF or if BNSF just operates over the segment. Nor has WFA provided a cost for any transportation alternatives, such as trucking or construction of an LRR line to the quarry.

It is indisputable that WFA would have to incur some cost to move the subballast from the quarry to the LRR main line. In its reply, BNSF's proposed trucking cost incorporates the transportation of subballast from the quarry to MP 94.1 and from there to the Guernsey Yard. Because WFA has not presented evidence of the cost to transport ballast from the quarry to MP 94.1, nor from MP 94.1 to the Guernsey Yard, we use BNSF's additive for trucking the subballast from the Guernsey Stone quarry to the Guernsey Yard.

Finally, we note that, in their initial filings, there were errors in each parties' indexing of subballast costs. Even though WFA properly indexed subballast unit costs in its rebuttal spreadsheet for this particular material, it improperly used the non-indexed cost in determining the overall construction costs. In its supplemental reply, BNSF corrected the technical errors in its indexing of subballast. Therefore, we use BNSF's indexing.

3. Geotextile Fabric

a. Quantity

The parties agree that geotextile fabric should be placed underneath the LRR's turnouts, but dispute whether the covered area should extend to the transition ties that precede the turnouts. BNSF argues that the geotextile fabric would be required for the transition ties. For reasons discussed under **Item 4.d., Transition Ties**, we reject BNSF's proposed use of transition ties at turnouts, and, accordingly, there is no need for corresponding geotextile fabric.

The parties otherwise appear to agree to the amount of fabric needed for each turnout.³³⁵ We note, however, that WFA's proposed turnout quantity, which would affect the geotextile fabric quantity, is incorrect because WFA's figure does not reflect the changes it claims to have made on rebuttal. Therefore, we restate the quantity of geotextile fabric based on our findings regarding turnout quantity, discussed below under **Item 7—Turnouts**.

b. Cost

The parties agree that crossings should be built using concrete and that geotextile fabric is required under crossings. They do not agree, however, on whether this cost has already been captured within the cost of the crossings.³³⁶ In BNSF's reply, when discussing geotextiles under its track construction discussion, BNSF implies that the costs for geotextiles are already included in its proposed overall crossing cost.³³⁷ Conversely, when discussing crossings under the public improvement discussion, BNSF states that its proposed cost for crossings does not include the costs for geotextiles.³³⁸ While WFA agreed on rebuttal to accept BNSF's proposed use of concrete for crossings and its proposed cost, WFA apparently assumed that this crossing cost included a sub-cost for geotextiles and therefore did not include an additional cost for this item.³³⁹ BNSF's spreadsheets show, however, that it included a separate, additional cost for geotextiles at crossings and WFA agreed on rebuttal to accept BNSF's unit cost for crossings. Accordingly, we use BNSF's additional cost for this item.

As for the unit cost of geotextile fabric that would be used in places other than crossings, the parties both use costs from Means, but WFA only includes the material, labor, and equipment costs, while excluding the costs for overhead and profit. We therefore use BNSF's unit cost.

4. Ties

a. Specifications

The parties agree that AREMA Grade 3 (6" x 8" x 8'-6") wooden ties would be used for yard, set-out, and helper tracks and that AREMA Grade 5 (7" x 9" x 8'-6") wooden ties would be used for existing wood tied segments of the main line track. However, the parties disagree over the type of ties that should be used to replicate existing concrete-tied main line and curves. BNSF argues that concrete ties should be used on these portions, but WFA argues that wooden ties would be sufficient.

³³⁵ See BNSF Reply Narr. III-F-93; WFA Open. WP.III.-F-05863-05865.

³³⁶ On rebuttal, WFA agrees with BNSF that the crossings should be constructed with concrete, but claims that the cost for geotextile fabric is still included in the crossing cost. See WFA Reb. Narr. III-F-89-90.

³³⁷ See BNSF Reply Narr. III-F-94.

³³⁸ BNSF Reply Narr. III-F-213.

³³⁹ WFA Reb. Narr. III-F-89-90.

BNSF claims that it began upgrading the Orin Line with concrete ties during the late 1980s and early 1990s and that concrete ties are now the standard on its high-density coal lines.³⁴⁰ BNSF also argues that a railroad being built to serve future traffic should be constructed to today's standards, rather than to standards previously used and currently being upgraded.³⁴¹ Nonetheless, BNSF limits proposed use of concrete ties to only those parts of the LRR system replicating parts where BNSF has itself installed concrete ties either in the initial construction or subsequent track upgrades.

WFA notes that the LRR would carry significantly less traffic over the Orin Subdivision than is currently shipped on the joint line by BNSF and UP combined. Specifically, WFA notes that the estimated peak-year tonnage for the LRR would be 154 MGT, while the peak-year tonnage estimate for BNSF and UP combined is 746 MGT.³⁴² Based on this difference, WFA argues that, while the cost of concrete ties may be justified for BNSF and UP, it would not be for the LRR. WFA also argues that there are drawbacks to using concrete ties, including: greater strain on the roadbed, sub-ballast and ballast; greater rail wear; and greater work effort for tie maintenance, removal and disposal.³⁴³

WFA has shown, through engineering analysis and calculations, that wooden ties would provide a subgrade pressure that falls within AREMA standards and, as a result, the use of wooden ties would adequately distribute the loadings through the track structure into the earth. Further, WFA has shown that, because the LRR would have traffic volumes significantly lower than the combined BNSF/UP traffic volumes, it would not be necessary to construct the LRR track using concrete ties. Accordingly, we use WFA's specification of wooden ties.³⁴⁴

Regarding tie spacing, the parties agree that 24-inch spacing should be used where Grade 3 wooden ties are used. They disagree on the spacing of Grade 5 wooden ties. WFA would use 20.5-inch spacing, whereas BNSF argues that 19.5-inch spacing would be needed. AREMA recommends that subgrade bearing pressure not exceed 25 pounds per square inch (psi). WFA has demonstrated that the pressure of a 286,000 pound railcar moving over Grade 5 ties with a 20.5-inch spacing produces a subgrade bearing pressure that is less than 25 psi.³⁴⁵ Therefore, we use WFA's specification of 20.5-inch spacing for Grade 5 wooden ties.

b. Quantity

The parties agree on the number of Grade 3 wooden ties that would be needed, but disagree on the number of Grade 5 wooden ties needed due to differences in their proposed tie

³⁴⁰ BNSF Reply Narr. III-F-105-06.

³⁴¹ See BNSF Reply Narr. III-F-22.

³⁴² See WFA Reb. Narr. III-F-3-4.

³⁴³ WFA Reb. Narr. III-F-96-97.

³⁴⁴ See e.g., TMPA at 128 (BNSF agreed to the use of wooden ties for the same line being replicated here and for a SARR that was carrying less traffic than the SARR here).

³⁴⁵ See WFA Reb. e-WP. Subgrade Pressure Calcs.pdf.

spacing. Because we use WFA's proposed tie spacing, we use its quantity of 3,091 Grade 5 ties per mile.

c. Unit and Transportation Costs

The parties agree on the unit cost for Grade 3 wooden ties, but disagree on the unit cost for Grade 5 wooden ties. WFA based its Grade 5 tie cost on Means. BNSF argues that, according to Means, a 10% additive must be added to account for overhead and profit related to the installation of the ties. WFA states that it contacted the publishers of Means and determined that these two additives do not apply to the material unit cost of the ties, but rather, to their installation.³⁴⁶ Accordingly, we find that no additive to the unit cost is needed.

We note that BNSF included a transportation cost in its discussion of concrete ties, but does not mention this cost in its discussion of wooden ties. In any event, the cost of delivery to Gillette, WY, is included in the supplier's cost, and the cost of transporting the ties to their point of installation along the line is included in the track contractor's cost. For these reasons, we do not include an additional transportation cost for the ties.

d. Transition Ties

BNSF would include transition ties at at-grade crossings and turnouts. Transition ties are needed where a marked change in track rigidity occurs at some point along the track. Track rigidity is particularly affected by variations in the roadbed structure beneath the track. Variations in the roadbed structure can reduce the load-carrying capacity of the roadbed. These variations may be a particular problem at switch locations where tracks and switches have gone through several maintenance cycles. At such locations, the performance of the maintenance work may disturb the underlying roadbed, causing roadbed variations and, hence, reductions in the load-carrying capacity of the roadbed. The track rigidity has then been reduced on the portion of track on which work was done. Transition ties are used to smoothly transition from the lowered track rigidity of the worked section to the undisturbed, higher rigidity of the tracks beyond the section on which work was done.

With a newly built railroad, however, it is wrong to assume that the roadbed beneath the turnouts differs from the roadbed under the track leading up to the turnout. As WFA notes, turnouts and tangent track would be built on the same basic substructure here.³⁴⁷ Moreover, BNSF offers no evidence that the loads from highway traffic that would pass over the track at at-grade crossings would be more substantial or more detrimental to the track than the loads imposed by a train. Accordingly, we do not include transition ties here.³⁴⁸

³⁴⁶ WFA Reb. Narr. III-F-101.

³⁴⁷ WFA Reb. Narr. III-F-102.

³⁴⁸ Although we used transition ties at at-grade crossings and turnouts in Xcel and Otter Tail, we did so based on the defendant railroad's specifications, which the shippers in those cases did not successfully rebut. Here, in contrast, WFA persuasively explains why transition ties would not be needed at at-grade crossings and turnouts on the LRR.

5. Rail

a. Specifications

i. Main Line Track

The parties dispute the type of rail that should be used on main line tracks for both tangential and curved segments. WFA would have the LRR use 136-pound premium rail for all main line segments, including those spots where BNSF uses 141-pound premium rail.³⁴⁹ BNSF argues that 141-pound premium rail should be used for curved segments (as BNSF itself does) and for tangential segments on those portions of the LRR lines that would replicate BNSF segments that have 141-pound premium rail.³⁵⁰

The fact that BNSF uses 141-pound rail for portions of its main lines does not demonstrate that 136-pound premium rail is infeasible. Indeed, 136-pound standard or premium rail is still in place on the majority of the BNSF lines being replicated. Accordingly, we use WFA's specification of 136-pound premium rail for all main line track.

ii. Branch Lines and Mine Spurs

For the LRR's branch lines and mine spurs, WFA specifies 136-pound standard rail for tangential segments and 136-pound premium rail for curved segments. For curved segments, BNSF would have the LRR use 141-pound premium rail.³⁵¹ However, BNSF has not shown that WFA's use of 136-pound premium rail is infeasible for curved segments. Accordingly, we use WFA's proposed cost for branch line and mine spur rail.

iii. Interchanges

On opening, WFA used 136-pound premium rail for interchange tracks at the Donkey Creek and Guernsey yards, and 115-pound relay rail for interchange tracks at the Campbell, Orin, and Moba Junction interchange points.³⁵² In its reply, BNSF agreed with use of 115-pound relay rail for interchange tracks, without addressing use of 136-pound premium rail on the interchange tracks specified by WFA.³⁵³ On rebuttal, WFA stated that interchange track would be constructed with 136-pound standard rail.³⁵⁴

While the parties' narratives may be ambiguous, it appears that BNSF did not challenge WFA's original specifications for interchange tracks.³⁵⁵ Accordingly, we use the interchange

³⁴⁹ WFA Reb. Narr. III-F-102-03.

³⁵⁰ BNSF Reply Narr. III-F-110-11.

³⁵¹ BNSF Reply Narr. III-F-111.

³⁵² WFA Open. Narr. III-B-8.

³⁵³ BNSF Reply Narr. III-F-111.

³⁵⁴ See WFA Reb. Narr. III-F-102.

³⁵⁵ BNSF Reply Narr. III-F-111, 117.

track specifications provided by WFA on opening (136-pound premium rail for interchange tracks at the Donkey Creek and Guernsey yards, and 115-pound relay rail for interchange tracks on the Campbell, Orin, and Moba Junction interchange lines).

iv. Yard Track and Set-out Track

The parties agree to use of 115-pound relay rail for the set-out and yard tracks.³⁵⁶

b. Quantity

The parties disagree on the quantity of rail needed for different types of track category. We discuss each individual category of track below.³⁵⁷

i. Crossovers & Turnouts

The parties generally agree that the cost of rail for turnouts is already included in turnout costs and, to avoid a double count, the amount of rail that would be needed for these turnouts should be subtracted from the overall rail quantity. However, BNSF argues that, because WFA specifies 25-foot track centers, additional rail would be needed between the end points of the turnouts, but WFA did not include a cost for this additional rail.³⁵⁸ In its opening workpapers,³⁵⁹ WFA provided a Standard Bill of Material for switches, which includes all rail needed to build the turnouts to the last long tie. Thus, the amount of rail needed for every turnout, including turnouts used in crossovers on main line track with 25-foot track centers, has already been accounted for, and, to avoid double counting, must be subtracted from the overall quantity. Therefore, we recalculate the parties' quantities to reflect this adjustment.

Likewise, we note that neither party subtracted the rail along both sides of the turnouts from the overall quantity. If the rail on both the curved and the straight sides of the turnout is not removed, that rail will be double counted as rail needed for the siding, interchange, set-out track, or main line. The record shows through the Standard Bill of Material for the turnouts that all rail to be used in each turnout, both straight and curved, is included in the purchase of that turnout. Accordingly, we have restated the rail quantities to account for rail that would be supplied as a part of the turnouts, including deductions for rail used on both the straight side and curved side of the turnout.

We have also noticed an error in WFA's quantity of rail needed at crossovers. Specifically, WFA agrees with BNSF that a crossover at MP 14.2 on the Orin Subdivision was

³⁵⁶ BNSF Reply Narr. III-F-111.

³⁵⁷ We note that there are discrepancies in WFA's rebuttal in regard to the track configuration/route miles. Specifically, WFA's spreadsheets do not match the corrections WFA claims to have made in the narrative. Accordingly, we rely on the route miles that were provided in WFA's track charts for costing purposes here.

³⁵⁸ See BNSF Reply Narr. III-F-112.

³⁵⁹ See WFA Open. WP. 05903-05905.

included in its RTC simulation but was inadvertently left off its track diagrams and investment costs. WFA claims to have corrected this error, but the two turnouts needed for the crossover were not added into its spreadsheet.³⁶⁰ We make the necessary correction.

ii. Curves

BNSF argues that WFA improperly removed all spiral information from its curve inventory and thus understated its rail quantity.³⁶¹ WFA claims that removal of the spiral information is needed in order to determine those parts of a curve that are 3 degrees or greater, because where the curve is more than 3 degrees WFA would use 136-pound premium rail. WFA notes that, if this were not done, the entire curve, including those portions less than 3 degrees, would be built to 3-degree-plus specifications using higher-priced 136-pound premium rail.³⁶²

Although WFA's review and analysis of the curves for determining those portions of the curves 3 degrees or greater was proper, in doing so, it failed to account for those portions of the spirals that are 3 degrees or greater. Under WFA's own specification, the spiral portions 3 degrees or greater would need to be built with premium rail, yet WFA has not accounted for these amounts. Thus, contrary to WFA's claim, it understates the quantity of premium rail required. We will adjust for this understatement.

iii. Yard Track

The parties generally agree to the amount of rail needed for yard tracks, with one minor exception. In its reply, BNSF would add 0.68 miles of track "outside of the Guernsey locomotive shop at Guernsey Yard for holding inbound and outbound locomotives prior to entering and after leaving the shop."³⁶³ But WFA argues that the Guernsey locomotive shop and the inbound/outbound shop tracks have been designed to hold 15 locomotives, whereas both parties agree that a maximum of 11 locomotives would be in the shop on any given day, and that the additional 0.68 miles of track would therefore be unnecessary.³⁶⁴

We agree with WFA that BNSF has failed to show that the 0.68 miles of track at the Guernsey locomotive shop would be necessary and we do not include it here. However, WFA agrees on rebuttal to add 0.05 miles of track for a locomotive lay-up track near the locomotive shop and that additional amount is included here.³⁶⁵

³⁶⁰ See WFA Reb. e-WP. "Track Quantities.xls," spreadsheet TO AEI FED Worksheet.

³⁶¹ BNSF Reply Narr. III-F-114-15.

³⁶² WFA Reb. Narr. III-F-104.

³⁶³ See BNSF Reply Narr. III-B-5 & III-B-49.

³⁶⁴ WFA Reb. Narr. III-B-18.

³⁶⁵ WFA Reb. Narr III-F-106.

iv. Interchanges

The parties agree on the amount of rail needed for interchanges.

v. Set-out Track

BNSF argues that WFA understates set-out track rail quantity. First, BNSF claims that the length of set-out tracks should be increased from WFA's proposed 860 feet to 925 feet because WFA used an incorrect method to determine the length of the set-out tracks. In addition to this increase, BNSF argues that, since WFA proposes to use some of the LRR's set-out tracks for MOW equipment storage, some set-outs would need to be even longer. Third, BNSF would add more set-out tracks due to its proposed use of concrete ties.³⁶⁶

We agree with BNSF that the correct length of set-out track would be 925 feet, not the 860 feet claimed by WFA. WFA incorrectly defines track lengths for set-out tracks as the distance between turnout intersection points, when the correct definition of track length is the distance between points-of-switches. WFA's error results in set-out tracks that are too short.

However, we reject BNSF's claim that some set-out tracks must be lengthened to store MOW equipment. In addition to providing for set-out tracks every 25 miles, under WFA's proposed system configuration, the LRR would have 1,000-foot set-out tracks at the Donkey Creek, South Logan, and Guernsey yards and at Wendover. The LRR could also temporarily store MOW equipment at the interchange tracks on Orin Junction. Longer tracks would be needed only during scheduled program maintenance involving ballast or rail trains (trains with specially configured train cars that enable it to transport individual pieces of rail), which would occur infrequently. It would be wasteful to install extra set-out tracks 1,000 to 1,400 feet in length for such infrequent use when other locations are available. Accordingly, we find that no additional set-out tracks would be needed for maintenance purposes.

Finally, because we reject BNSF's proposed use of concrete ties, we reject its proposed inclusion of additional set-out tracks to accommodate the additional dragging equipment detectors that would be required for track constructed with concrete ties.

c. Unit Costs

WFA bases its unit costs for 136-pound standard and 136-pound premium rail on a 2004 price list provided by BNSF in discovery. BNSF objects to WFA's reliance on this price list, arguing that the price list contains only unadjusted 2003 prices. BNSF notes that this is confirmed by a comparison to its 2004 AFEs, which show a higher price for the rail due to a 2003 increase in the price of steel. BNSF also argues that WFA's indexing does not correct the problem because WFA treats the 2003 costs as 2004 costs and thus starts indexing from an incorrect point in time.³⁶⁷

³⁶⁶ BNSF Reply Narr. III-F-117-19.

³⁶⁷ BNSF Reply Narr. III-F-119-20.

In prior cases, we have rejected a railroad's attempts to discredit evidence that comes from the railroad itself. See Xcel at 103. Because WFA reasonably relied here on evidence provided by BNSF, we use WFA's unit costs for different types of rail. Although it may be true that comparing the price list with the AFEs would have shown a price disparity, WFA is not obligated to verify that all materials submitted by BNSF in discovery are in agreement. Even if WFA had noticed a discrepancy, it would have had to choose between two equally valid prices, with no information from BNSF indicating which was more appropriate.

BNSF also argues that WFA fails to take into account the cost of transporting the rail from the suppliers' delivery points to the railheads where the rail would be needed. Moreover, BNSF notes that WFA proposes to have the rail needed for main line track construction distributed to the appropriate railheads only as the line would be built, which is not permissible.³⁶⁸ On rebuttal, WFA agreed to include additional points of delivery as specified by BNSF, but WFA switched to more efficient routes for shipping the rail.³⁶⁹

WFA's attempted change of routes was not within the permissible scope of rebuttal, and BNSF did not have an opportunity to challenge the new routes. Moreover, based on our examination, those routes might not be feasible, because trains at certain junctions and terminals might not be able to be routed in the direction WFA would have them go. Accordingly, we use BNSF's cost of transporting the rail to the necessary locations. We also correct several errors in the parties' spreadsheets.

While WFA indexed the unit cost of rail in its opening presentation, it neglected to do so in its rebuttal evidence. We correct this oversight and apply the correct index to the unit costs (including transportation costs) for rail.

d. Field & Compromise Welds

The parties agree on the unit cost for both field and compromise welds, as well as the quantity of field welds, but disagree on the quantity of compromise welds.³⁷⁰ BNSF includes additional compromise welds both because it increased the number of set-out tracks due to its use of concrete ties and because WFA failed to include enough compromise welds for its yard turnouts (where the track would change from 115-pound rail to 136-pound rail).³⁷¹

Because, as discussed above, we reject BNSF's proposed use of concrete ties, that is not a proper basis for increasing the number of set-out tracks. As for the claimed need for additional compromise welds on yard turnouts, WFA asserts that welds would not be needed because the LRR would use 115-pound rail for all yard track, including yard turnouts. WFA states that its use of a 136-pound rail unit cost for yard turnouts on opening, which lead BNSF to include additional welds, was an error. (WFA continues to use this cost, despite its specification of

³⁶⁸ BNSF Reply Narr. III-F-120-21.

³⁶⁹ WFA Reb. Narr. III-F-108.

³⁷⁰ A compromise weld is used to weld together the ends of two rails which have different rail sections.

³⁷¹ BNSF Reply Narr. III-F-122-23.

cheaper rail.³⁷²) Because the LRR would use 115-pound rail on its yard turnouts, there would be no need for additional welds on those turnouts. Thus, no cost for additional compromise welds is necessary.

6. Other Track Materials

The LRR would require tie plates, clips, spikes, and anchors, as well as rail lubricators, derails, and wheel stops, to construct its lines. The parties agree on the costs for each of these items. They also agree on the quantity of rail lubricators.

The parties disagree on the number of spikes needed per tie plate: WFA argues for two, BNSF argues for four. WFA claims that AREMA requires only two spikes and that NSR uses the same spiking pattern on its heavy-axle lines.³⁷³ WFA also provided pictures of BNSF's own lines that shows tie plates nailed down with only two spikes. BNSF argues that the two-spike AREMA standard is just a base requirement and that AREMA actually requires more spikes but does not mention a specific number because it leaves the placement of additional spikes to the railroad to choose based on line-specific factors. BNSF also claims that of the two pictures presented by WFA, one is from a line that is less heavily trafficked and the other actually shows three spikes per tie.³⁷⁴

Although BNSF is correct that the AREMA standard is just a base requirement, the wording of the AREMA specification does not require a more stringent spiking criteria if a railroad chooses not to use one. BNSF has not shown that the factors that might lead to the need for additional spikes would apply to the LRR's lines. Accordingly, we use WFA's quantity of spikes, as the use of two spikes is supported by the practice of another carrier and by AREMA standards.

There are other differences between the parties' quantities for these items due to BNSF's use of concrete ties. Because we reject the need for concrete ties, we use WFA's quantities for these items. However, WFA miscalculated the required lengths of set-out tracks and only specified the length of those tracks to a tenth of a mile. Track lengths directly impact the quantities of other track material required for construction. Also, neither party correctly determined the quantity of the various rail types. That also impacts the quantities of other track material.

7. Turnouts

a. Quantity

BNSF claims that WFA understates the number of turnouts needed on the LRR. WFA calculated the quantity of turnouts based on track diagrams. A review of track diagrams shows, however, that WFA omitted some turnouts and also made other errors in deriving its turnout

³⁷² WFA Reb. Narr. III-F-108-09.

³⁷³ WFA Reb. Narr. III-F-113.

³⁷⁴ BNSF Reply Narr. III-F-129-30.

totals. Accordingly, we use the turnout quantity from WFA's rebuttal quantity, with the following revisions:

- the number of No. 10 turnouts is reduced by three and the number of No. 20 turnouts is increased by three to correctly configure the Orin Junction interchange tracks;
- the number of No. 10 turnouts is increased by one to account for a turnout needed for the additional yard track at the Guernsey locomotive shop;
- the number of No. 20 turnouts is increased by two to account for the crossover at MP 14.20; and
- the number of No. 20 turnouts is reduced by one to reflect WFA's error of counting a turnout for the Fort Union Mine.

BNSF includes additional turnouts due to its specification of concrete ties and corresponding additional set-out tracks. As discussed above, we reject these BNSF specifications for set-out tracks. Thus, we do not include any turnouts that would result from these modifications. BNSF also includes a turnout at Nacco Junction, but its own RTC Model shows that there would be no second track at this point and thus no need for a turnout.

b. Unit Cost

The parties agree on the unit cost for the turnouts.

c. Switch Heaters and Propane Tanks

The parties agree on the unit and delivery costs for switch heaters. The parties appear to agree that switch heaters would be needed on all No. 14 and No. 20 turnouts, but there is a difference between the parties' quantity of switch heaters, due primarily to their differing turnout quantities, discussed above in **Section C.7.a**. The difference in quantities is also the result of WFA's failure to include switch heaters on three of the No. 14 turnouts. We restate the quantity of switch heaters to be consistent with the number of No. 14 and No. 20 turnouts that we use, including the three turnouts for which WFA omitted switch heaters without explanation.

The parties agree on a unit cost for propane tanks and that one tank would be provided for every switch heater.

d. Switch Stands

WFA and BNSF agree that low-target (hand-thrown) switch stands would be required on all No. 10 turnouts, and they agree on the unit cost for these switch stands. However, BNSF would include costs for two additional components: a target and target mast.³⁷⁵ WFA argues that the cost of these components is already included in its unit cost, based on a quote from A&K Railroad Materials, Inc. (A&K).³⁷⁶

³⁷⁵ BNSF Reply Narr. III-F-126-27.

³⁷⁶ WFA Reb. Narr. III-F-111-12.

Although the A&K quote does not specifically list a target or target mast, we agree that they are included in the quoted price. First, targets and masts are usually sold as part of a complete switch stand unit on a unit-price basis. Thus, a quote would likely not list a target, mast, or any other pieces individually when purchasing a new stand. Second, WFA's workpaper shows two prices, one for a low-*target* switch stand and one for a high-*target* switch stand.³⁷⁷ The difference in price between the two types of switch stands can only reflect the different cost of the mast arrangements, as all other parts of a high-target and low-target switch stand are equal. Thus, even if BNSF has some other arrangement with its suppliers, WFA's evidence encompasses the masts and targets as part of its switch stand prices. Therefore, we use WFA's unit cost without additional add-ons.

The parties also agree that powered switch machines would be needed, and they agree to the unit cost.

e. Generators

WFA did not include generators at turnouts, because it contends that the batteries included with the signal system would be capable of operating the switch mechanisms in the event of a power outage.³⁷⁸ BNSF argues that generators should be included throughout the LRR system in order to clear switches of ice and snow during a power outage, thereby avoiding disruptions to rail operations.³⁷⁹ Although we agree with WFA that batteries would be sufficient in the event of a power outage, WFA has not shown that batteries alone would be sufficient to power the switch heaters in the event of snow or ice. Accordingly, we include the generators as necessary. See TMPA, 6 S.T.B. at 718-19.

Notwithstanding its argument that generators would not be needed, WFA provided evidence of the material unit cost and installation cost of generators. BNSF does not challenge WFA's material unit cost, but disagrees with WFA's installation cost. As BNSF points out, the installation cost used by WFA in its spreadsheet does not match the cost listed in Means, upon which WFA states that it based this cost.³⁸⁰ Moreover, WFA failed to take into account profit and overhead as part of the installation cost. Accordingly, we use BNSF's proposed cost for installation of the generators, which includes appropriate indexing.

Because WFA would not have the LRR use generators, WFA has not provided a quantity. BNSF proposes 20-kilowatt generators where there are one to two turnouts and 35-kilowatt generators at double crossovers or where there are three or four turnouts. BNSF does not include a generator for every turnout, presumably due to the fact that one generator could serve two or more switches in close proximity to one another and the fact that some turnouts would be in locations that would be easily accessible should they require cleaning to prevent freezing.

³⁷⁷ See WFA Reb. e-WP. "Switch Stands.pdf."

³⁷⁸ WFA Reb. Narr. III-F-112.

³⁷⁹ BNSF Reply Narr. III-F-127.

³⁸⁰ Compare WFA Reb. e-WP. "III-F Total.xls," worksheet "Material Unit Cost" with WFA Open. e-WP. "162.1.pdf."

BNSF's quantity is the only evidence of record, and it appears to be reasonable. Accordingly, we use its generator quantity.

8. Track Labor and Equipment

a. Main Line Tracks

WFA relied on a quote from Windgate Constructors (Windgate) from Greensburg, PA, for the cost of constructing the entire LRR system, including both main lines and secondary lines. BNSF challenges WFA's reliance on the Windgate quote for construction of main lines. BNSF argues that Windgate, which is located in Pennsylvania, would not be familiar with construction of lines in the PRB. BNSF further argues that Windgate was not given enough information about the project to develop an accurate quote and that its proposed cost is too low and was made "specifically for this litigation." Instead, BNSF developed a per-track-mile labor and equipment cost figure based on the AFE from the Shawnee-to-Walker project (although BNSF agrees with WFA's Windgate-based installation costs for some items).³⁸¹

WFA argues that BNSF's drastically different proposed specifications for the track reflect an attempt to make the Windgate quote appear unreliable. WFA points out that the Shawnee-to-Walker labor costs relied on by BNSF were based on the use of a unionized workforce, which would be more expensive than paying an outside contractor such as Windgate to perform the work.³⁸²

We find that BNSF has failed to discredit WFA's reliance on the quote from Windgate. The fact that Windgate is from Pennsylvania has no bearing on its qualifications to install the track; this would be an issue only for grading and subgrading work (which Windgate was not asked to provide a quote for). If quotes were thrown out for being used only for rate case adjudications, no quotes could ever be admitted. For a system that will never actually be constructed, BNSF has not provided any hard evidence that Windgate's quote is too low (only the opinion of BNSF's own witness), nor any evidence that there has been collusion between Windgate and WFA to skew the quote. As WFA points out, BNSF's cost may be higher than what the LRR would need to pay due to BNSF's use of unionized labor. Accordingly, we use WFA's labor and equipment cost for main line track.

b. Yard, Set-out, Helper, Interchange Tracks & Turnouts

BNSF developed a per-track-mile labor and equipment cost for these types of track from a BNSF yard construction project in Joilet, IL, for which it contracted out the labor and equipment, but supplied the materials itself.³⁸³ WFA counters that BNSF's use of a unionized contractor would result in a higher labor cost than the LRR would incur. Moreover, BNSF's

³⁸¹ BNSF Reply Narr. III-F-133-34.

³⁸² WFA Reb. Narr. III-F-115-18.

³⁸³ BNSF Reply Narr. III-F-135.

specification of concrete ties for the Joilet yard would also increase the cost of labor beyond what the LRR would need to pay.³⁸⁴

BNSF also used data from the Joilet yard construction to estimate the labor and equipment cost of installing the LRR's turnouts. WFA objects to these data for the same reasons.

Again, BNSF has not refuted WFA's proposed cost for this work, based on the quote from Windgate. Rather, WFA has discredited BNSF's cost evidence. Thus, we use WFA's labor and equipment cost for these secondary tracks as the best evidence of record.

9. Transportation, Indexing, and Construction Schedule

Unlike in prior SAC cases, the parties here addressed the cost of transporting materials within the discussion for each individual item. Accordingly, there is no overall transportation cost that needs to be considered.

The parties' indexing is the same.³⁸⁵ The parties also agree on a 30-month construction schedule.

D. Tunnels

The parties agree on a construction cost for tunnels on the LRR of \$6,001 per linear foot, based on costs derived from Coal Trading Corp., et al. v. B&O Railroad Co., et al., 6 I.C.C.2d 361, 422 (1990). However, BNSF includes a maintenance cost associated with upkeep of the timber used to construct these tunnels. WFA argues that no timber maintenance cost would be needed, because the \$6,001 per linear foot figure would be sufficient to cover the costs of constructing tunnels with concrete and steel only, and that no timber would need to be used in construction of the tunnels.³⁸⁶

WFA's only support for its claim is an assertion by one of its witnesses that a similar tunnel was constructed using concrete and steel for a similar cost, but WFA provides no documentation for this comparison. Accordingly, we use BNSF's tunnel maintenance cost, which is discussed further in **Appendix C—Operating Expenses, Section K-Maintenance-of-Way, Item 4.m.i.**

³⁸⁴ WFA Reb. Narr. III-F-117-18.

³⁸⁵ As BNSF noted in its reply, WFA made an indexing error in its opening evidence that affected most of its construction costs. WFA corrected this error on rebuttal. WFA Reb. Narr. III-F-89.

³⁸⁶ WFA Reb. Narr. III-F-119.

E. Bridges

1. Bridge Inventory

The parties agree on the overall number of bridges, as well as the number of tracks per bridge, and WFA's substitution of culverts for five bridges on the lines replicated. The parties also agree on the construction costs for 19 overpasses. See Section H—Public Improvements, below, for a discussion of these overpass costs. Finally, the parties agree that the LRR would have a highway bridge at the Guernsey Yard.

2. Bridge Design

The parties agree that bridges would be classified into four categories, with a separate cost corresponding to each category. The only dispute between the parties regarding the design of bridges is WFA's substitution of concrete spans for steel spans. BNSF does not object to this substitution, but argues that the use of concrete spans would require that the length of two bridges—Bridges 133.01 and 95.65—be increased. Specifically, BNSF claims that using concrete spans would result in a lower clearance and the need for wider piers, causing a reduced flow area beneath the bridge, which in turn would require that the two bridges be lengthened.³⁸⁷ BNSF points to a report supplied by WFA on the replacement of a steel span with a concrete span on BNSF's Canadian River Bridge (referred to by the parties as the "Jennison paper"). WFA contends that neither bridge would need to be longer. It argues that concrete spans do not have a lower clearance than steel spans and that the Jennison paper that BNSF relies on in support of its claim actually shows that the original steel span had a lower clearance than the concrete span with which it was replaced.³⁸⁸

According to the Jennison paper, when that bridge was converted from steel to concrete spans, the track was also elevated. That is why the clearance for the concrete spans was higher than the old steel spans; it was not simply because concrete was used. Thus, the Canadian River Bridge addressed in the Jennison paper is not an apt comparison.

Bridge 133.01. WFA notes that, for Bridge 133.01, the existing BNSF bridge is built with five concrete spans and two steel spans, but that the clearance is actually lower on the steel spans than for the concrete spans. WFA makes this comparison of the clearance levels of the steel and concrete spans on BNSF's bridge by reviewing photographs.³⁸⁹

The fact that BNSF's bridge has steel spans with a lower clearance than the concrete spans is irrelevant. Rather, what matters is the elevation of the concrete spans on BNSF's seven-span bridge compared to the elevation of the concrete spans on the LRR's proposed four-span bridge. Contrary to WFA's claims, the concrete spans on WFA's proposed Bridge 133.01 would almost certainly have a lower chord (a low chord is the elevation of the bottom of the span or girder) than the concrete spans on BNSF's existing bridge. This is due to the fact that

³⁸⁷ BNSF Reply Narr. III-F-142-43.

³⁸⁸ WFA Reb. Narr. III-F-121-22.

³⁸⁹ WFA Reb. Narr. III-F-122.

BNSF's bridge is comprised of seven spans, while the LRR's bridge would be comprised of only four spans.

Specifically, the record shows that BNSF's existing bridge has two steel trestle spans that are both 125 feet long and five concrete spans that are each between 24 and 26 feet long. The LRR's bridge, by contrast, would have four concrete spans with a maximum length of 125 feet each. Because the LRR's bridges would require longer concrete spans than those on BNSF's bridge and thus be required to have a greater load carrying capacity than BNSF's existing spans, the cross sections of the LRR's spans would have to be deeper. This extra depth could not be accommodated by raising the elevation of the rail line, which has a fixed elevation. Therefore, because of the deeper cross sections of the LRR's longer concrete spans, the bottom elevation of these spans would be lower than the concrete spans on BNSF's existing bridge.

Although this lower elevation would theoretically lead to reduced flow area (due to a lower clearance for water flowing beneath the bridge and wider piers), it should be noted that WFA's reduction in the number of spans on the LRR's bridge would reduce the number of piers needed, which in turn would add to the flow area. However, without knowing what the precise depth of the LRR's concrete spans would be, it is not possible to determine whether this increase in water flow would offset the decrease created by the lower clearance. Without this information, we cannot know for certain whether the flow area would increase or decrease as a result of WFA's use of concrete spans.

Thus, contrary to WFA's claim, it is not the material alone that determines the bridge's clearance and, conversely, flow area. Rather, it is a combination of material, span length, and the number of beams running from column to column. Here, WFA has not shown that its combination of these factors would result in a sufficient flow area, thus avoiding the need to increase the bridge length. Because the burden rests with WFA, and it has failed to refute BNSF's assertion that concrete spans would require an increase in the length of this bridge, we use BNSF's adjustment to this bridge's design.

Bridge 95.65. WFA also argues that Bridge 95.65 would not need to be longer, based on its review of photographs of BNSF's existing bridge and comparing the varying elevations of spans that make up that bridge.³⁹⁰ Although WFA would have this bridge constructed with the same number of spans as used on BNSF's bridge, again, without knowing what the exact depth of the concrete spans would be, we cannot determine the overall impact on the flow area beneath the bridge. Again, WFA has not refuted BNSF's evidence. Therefore, we use BNSF's adjustments.

3. Bridge Costs

WFA calculated bridge costs by developing a standardized cost formula for each of four bridge types (Type I, II, III, or IV). WFA determined the inputs for its formula (i.e., the quantities and unit costs of wing walls, abutments, columns, and decks) for Type I, II, and III bridges by calculating the average unit costs from 21 recent BNSF bridge projects, using data BNSF provided on discovery. WFA developed the Type IV bridge costs using the

³⁹⁰ WFA Reb. Narr. III-F-122.

aforementioned Jennison paper and other materials describing the construction of BNSF's Canadian River Bridge. WFA then applied these costing formulas by identifying which classification a particular bridge would come under, and inputting the bridge's proposed length and number of spans. BNSF agrees with WFA's classification of each bridge. However, it disputes aspects of WFA's costing methodology.

a. Type I, II, and III Bridges

BNSF specifically disputes WFA's calculation of "miscellaneous additional material" for each of the 21 bridges it relied on to determine its overall costs. WFA determined the miscellaneous materials costs by determining the cost of pre-cast items and then subtracting it from the overall bridge costs, with the remaining cost serving as the miscellaneous materials cost. BNSF accepts WFA's approach, but claims that WFA made errors in its applications.³⁹¹

According to BNSF, it provided WFA with a large amount of data from an AFE database, from which WFA took entries and totaled to determine the overall material costs for each bridge. BNSF claims that WFA's approach is flawed, however, in that WFA calculated a negative miscellaneous material cost for some bridges. Such a result is illogical, BNSF argues, because it would mean that the total cost of constructing the bridge would be less than the total cost of the pre-cast components. BNSF states that WFA's negative totals are the result of its failure to include certain material costs in its total calculations. BNSF notes that once the missing costs are included—based on actual project invoices for these bridges—there would no longer be any negative miscellaneous material costs. Here, because WFA included these negative values in its averages of per-linear-foot miscellaneous material costs, BNSF asserts that WFA's averages are skewed. BNSF has recalculated costs by excluding any data from those bridges where WFA derived a negative value for miscellaneous materials.³⁹²

WFA acknowledges that it calculated a negative cost for miscellaneous materials on some bridges, but it argues that this is because some items were incorrectly or inadvertently linked with another of the 21 bridges in the group. Thus, WFA claims that, although the miscellaneous materials cost for some bridges is unrealistically low, the same cost for other bridges is unrealistically high, and that overall, the appropriate costs have been captured somewhere in WFA's bridge group. WFA disputes BNSF's claim that these negative costs are the result of WFA's exclusion of certain items. WFA notes that the documentation BNSF submits purportedly in support of these missing expenses are not invoices at all, as they lack any details of prices.³⁹³

There are several problems with BNSF's claim that WFA's negative costs for miscellaneous materials on certain bridges is the result of missing expenses. First, we agree with WFA that BNSF's documentation is insufficient evidence of these alleged missing expenses. Although BNSF calls these documents "invoices,"³⁹⁴ they are actually material requisition forms

³⁹¹ BNSF Reply Narr. III-F-148.

³⁹² BNSF Reply Narr. III-F-150-52.

³⁹³ WFA Reb. Narr. III-F-124-26.

³⁹⁴ See BNSF Reply Narr. III-F-151.

and shipping notices. The documents do not include any information regarding the prices paid for the materials. Nor is there any evidence that these materials were not already included in BNSF's AFE database and thus already accounted for by WFA.

As an example of the alleged missing material costs, BNSF points to the fact that WFA only accounted for 22 piles on Bridge 483.2, even though BNSF claims this bridge has 46 piles. But a review of the electronic bridge file provided by BNSF to WFA shows that only 22 piles are listed for this bridge.³⁹⁵ Thus, BNSF's claim demonstrates, if anything, that BNSF likely provided WFA with incorrect data on discovery, and it is therefore incorrect in its claim that WFA neglected certain unit costs.

Without any concrete evidence that WFA's negative costs for miscellaneous materials were the result of missing unit costs, we accept WFA's claim that these negative figures were caused by assigning some costs to the wrong bridges. As WFA notes, this conclusion seems to be borne out by the fact that, for some bridges, WFA's miscellaneous materials costs were unusually high. Even if we were to accept BNSF's claim, by excluding only the outliers with negative costs, while still including outliers with miscellaneous materials costs way above average (such as those pointed out by WFA), BNSF's recalculated averages would be skewed too high. Accordingly, we use WFA's miscellaneous materials costs, and resultantly, its overall bridge costs for Type I, II, and III bridges.

b. Type IV Bridges

WFA uses the same basic methodology to calculate Type IV bridges as for Types I, II, and III, except that, instead of relying on information from BNSF's construction of 21 bridges, it relies solely on information from BNSF's construction of its Canadian River Bridge, as detailed in the Jennison paper. BNSF accepts WFA's costing method, but argues that WFA did not include a unit cost for I-beam girders. BNSF explains that this cost was not included in the bids for this bridge project because BNSF provided these girders and not a contractor. BNSF notes that, once the cost for the girders is factored into WFA's calculation, its per-linear-foot cost for Type IV bridges is almost identical to that for the Canadian River Bridge.³⁹⁶

In its rebuttal, WFA notes that BNSF has provided no support for its claim that it incurred a cost for girders on the Canadian River Bridge project, other than a statement from its engineering witness. WFA states that its own witness, who co-presented the Jennison paper discussing this bridge project, confirmed that the cost of the girders was already included in the cost. WFA also challenges BNSF's claim that inclusion of an additional girder cost results in an overall cost that more closely resembles the overall cost of the Canadian River Bridge. WFA states that the reason for this apparent similarity is that BNSF's Canadian River Bridge overall cost includes costs that WFA has either included in other parts of its road property investment

³⁹⁵ A review of BNSF's design plans for this bridges shows 44, not 46, piles, see BNSF Reply WP.III-F-459, but BNSF's spreadsheet of bridge costs shows only 22 piles for this bridge. See BNSF Reply e-WP. "III F 5 Bridges.xls," tab "material." However, WFA is not required to verify that BNSF's data are correct or supported.

³⁹⁶ BNSF Reply Narr. III-F-152-53.

analysis (such as sub-ballast installation) or would not incur at all (such as removal of the existing bridge).³⁹⁷

Although BNSF alleges that the costs derived from the Jennison paper do not include a cost for girders, it does not provide any documentation that it in fact incurred this cost. The only evidence that BNSF does provide is an assertion from one of its witnesses who was involved with the project, but WFA has presented contradictory assertions from its own witness, who was connected to the project. Because there is no other evidence that one party's statement should be given more weight over the other party's statement, we cannot rely on either statement here. In any event, BNSF has not demonstrated that a cost for girders should be included for Type IV bridges. We therefore use WFA's costs for Type IV bridges as reasonable.

c. Transportation and Indexing Costs

The parties agree to the indexing of the bridge materials and labor costs, as well as the costs of transporting materials to the bridge construction sites.

F. Signals & Communications

As shown in **Table D-6**, the costs for providing a signaling and communication system for the LRR are in dispute. We discuss each element below.

Table D-6
Communications and Signal System

	WFA	BNSF	STB
Centralized Traffic Control	\$49,907,166	\$58,914,259	\$50,078,111
Communications	8,238,570	9,906,209	9,469,220
TOTAL	\$58,145,736	\$68,820,468	\$59,547,331

1. Centralized Traffic Control

The parties generally agree on the cost for constructing a centralized traffic control (CTC) system, with some minor exceptions, which we discuss below.

a. Quantities

BNSF alleges that there are several discrepancies, errors, and omissions in WFA's spreadsheets, including differences between WFA's signal schematic plan and the quantities it used to calculate costs. According to BNSF, in some instances, these inconsistencies resulted in an overstatement of a quantity (e.g., at location CP F 223 on WFA's signal schematic, BNSF claims that WFA provided for four signals when only three would be necessary), while in others

³⁹⁷ WFA Reb. Narr. III-F-126-27.

instances it resulted in an understatement of a quantity (e.g., at location CP C 65, WFA provided for only one signal hut when two would be necessary).³⁹⁸

On rebuttal, WFA agreed that it initially overstated the number of signals needed at CP F 223 and corrected for this error, but claims that no other corrections are needed. Regarding the use of only one signal hut at CP C 65, WFA argues that a signal hut can house eight devices, be they signals or switches. At this spot, WFA claims that there would be five signals and three switches, and therefore one hut would be sufficient. WFA argues that BNSF's misassumption regarding signal huts leads to BNSF's other alleged errors.³⁹⁹

BNSF also increases the quantity of signal components to account for the additional set-outs for dragging equipment detectors that it states would be necessary due to the LRR's use of concrete ties. As we have noted, we reject BNSF's use of concrete ties and any costs associated with their use, including the use of additional signal equipment. Further, WFA has corrected its error relating to location CP F 223 and has justified its use of only one signal hut at location CP C 65. Otherwise, the parties appear to be in agreement on the quantity of signal components. Accordingly, we use WFA's quantities.

b. Insulated Joints

BNSF argues that WFA failed to include a cost for insulated joints at intermediary signals. WFA responds that insulated joints would not be necessary because the LRR would use jointless technology, such as intelligent track circuits and grade-crossing predictor equipment.⁴⁰⁰ However, WFA did not argue or submit any evidence on opening that would indicate that it intended to use jointless technology. It identified its reliance on jointless technology for the first time on rebuttal. Because BNSF has not had an opportunity to reply to this issue, WFA's rebuttal evidence cannot be considered. Therefore, we use BNSF's cost for insulated joints.

c. Independently Controlled Switches

BNSF asserts that an Independently Controlled Switch (ICS) would need to be included for every crossover, at a cost of \$110,000 each. BNSF explains that, without these devices, if one turnout were shut down, the other turnout would shut down as well. Thus, according to BNSF, ICSs would be needed to allow traffic to continue to flow on an adjacent track when one track is out. BNSF notes that WFA implicitly agrees to the use of these switches because, in WFA's RTC model, the LRR's trains run uninterrupted even when a random outage shuts down one track.⁴⁰¹

WFA claims that the same result could be achieved by simply wiring the turnouts in the crossover to separate controllers within the signal hut. WFA states that it included the costs

³⁹⁸ BNSF Reply Narr. III-F-158-59.

³⁹⁹ WFA Reb. Narr. III-F-128-29.

⁴⁰⁰ WFA Reb. Narr. III-F-130.

⁴⁰¹ BNSF Reply Narr. III-F-159.

necessary for such wiring.⁴⁰² However, because WFA did not present evidence of this plan to wire turnouts independently in its opening presentation, BNSF has not had an opportunity to review and challenge this evidence.⁴⁰³ Accordingly, WFA's evidence cannot be considered, and we include BNSF's cost for ICSs.

d. Unit Costs

BNSF accepts all of WFA's unit costs for CTC components with the exception of commercial power drops. WFA states that it based the cost of these power drops on the price used by the Board in AEP Texas. BNSF notes that the price used by WFA actually differs from the AEP Texas price, and it argues that this discrepancy is demonstrated by the fact that WFA used a different cost (the actual AEP Texas cost) for power drops for use in microwave towers.⁴⁰⁴ WFA responds that it used the cost from AEP Texas only as a base figure and that its expert determined, based on his experience, that the price for CTC power drops could be lowered because of their proximity to the ROW, while those on the microwave towers would need a higher cost (the full AEP Texas price) due to their distance from the ROW.⁴⁰⁵ WFA, however, has failed to show how distance from ROW would reduce its cost for CTC power drops. Therefore, we use BNSF's cost evidence for CTC power drops, including its indexing evidence.

e. Signal Unit Counts

WFA developed per-device AAR signal unit counts based on those used in prior SAC cases. On reply, BNSF changed a number of the counts without explanation. On rebuttal, WFA claimed that, in many instances, both parties had overstated the counts, and it restated its counts on rebuttal.⁴⁰⁶ However, a party may not impeach its own evidence. See CP&L at 103. However, because BNSF failed to support its modification of WFA's opening counts, we use the counts WFA submitted on opening.

2. Detectors

The parties agree to the quantity and unit cost for failed equipment detectors (FEDs) on the LRR.⁴⁰⁷ However, the parties disagree on the quantity and cost of dragging equipment detectors (DEDs). First, BNSF would increase the number of DEDs due to its proposed use of

⁴⁰² WFA Reb. Narr. III-F-130-31.

⁴⁰³ See Duke/NS at 15 (“[T]he shipper must plan to submit its best, least-cost, fully supported case on opening. It may not hold back to see the railroad’s reply evidence before finalizing or supporting its own case . . .”).

⁴⁰⁴ BNSF Reply Narr. III-F-160.

⁴⁰⁵ WFA Reb. Narr. III-F-132.

⁴⁰⁶ WFA Reb. Narr. III-F-133.

⁴⁰⁷ WFA Reb. Narr. III-F-134.

concrete ties.⁴⁰⁸ Because we reject the use of concrete ties, for reasons previously discussed above, we find that no additional DEDs would be needed. Second, BNSF notes that WFA included costs for a 12-volt battery, solar power equipment, and cables for FEDs, but not for DEDs. BNSF therefore adds the costs for these items for each DED. Third, BNSF included an installation cost for DEDs.⁴⁰⁹ On rebuttal, WFA failed to explain why a 12-volt battery, solar power equipment, and cables would be required for FEDs, but not for DEDs. It also failed to explain why it excluded installation costs for DEDs. Accordingly, while we use WFA's quantities, we use BNSF's DED unit costs and installation costs.

The parties agree on the location and cost for crossing signals, but BNSF would add a cost for insulated joints at those spots.⁴¹⁰ On rebuttal, WFA argues that the LRR would use jointless technology at these locations.⁴¹¹ As noted above, there was no evidence on the use of jointless technology in WFA's opening or BNSF's reply. Therefore, WFA cannot raise this for the first time on rebuttal. Accordingly, we include the cost of insulated joints for crossing signals.

3. Communications

BNSF generally accepts WFA's proposed communications system; however, BNSF claims that there are numerous instances where the costs used in WFA's spreadsheets do not match the corresponding quotes on which those costs were claimed to be based. We discuss each disputed aspect below.

a. Microwave Base Station

In one of its opening spreadsheets, WFA identified the microwave base station as an Alcatel model, but the documented source upon which the cost for this model is based is shown as being from the Colorado Order Guide, not the Alcatel Pricing Manual. According to BNSF, the unit cost from the Colorado Order Guide documentation, which BNSF used, is \$38,433, but WFA used a cost of \$27,850.⁴¹² On rebuttal, WFA acknowledged that its opening presentation "did lack proper references in certain cost categories," but noted that all of the source documentation for its costs was nonetheless included in its supporting materials.⁴¹³ The reference to the Colorado Order Guide was apparently one such instance of an improper reference. On rebuttal, WFA pointed to the correct source from which it derived the \$27,850 value.

⁴⁰⁸ BNSF Reply Narr. III-F-161.

⁴⁰⁹ BNSF Reply Narr. III-F-162.

⁴¹⁰ BNSF Reply Narr. III-F-162.

⁴¹¹ WFA Reb. Narr. III-F-134.

⁴¹² BNSF Reply Narr. III-F-163-64.

⁴¹³ WFA Reb. Narr. III-F-135.

Despite its erroneous cross-reference, the proper supporting documentation for WFA's unit cost was in its opening presentation. However, the burden of justifying its cost with supporting evidence is on the proponent. It is not the duty of the other party to sift through the proponent's evidence for the correct supporting documents to help the proponent make its case. For this reason, as well as the fact that BNSF's figure is based on a unit cost obtained from WFA's own evidence, we use BNSF's unit cost for microwave base stations.

b. Microwave Radio Antennae

Again, BNSF was unable to find the appropriate source for WFA's unit cost for microwave radio antennae because, as WFA itself acknowledges, the wrong source was given. As a result, BNSF used the unit cost from another source in WFA's workpapers.⁴¹⁴ Because of its cross-referencing error, WFA agrees to BNSF's unit cost, but argues that a corresponding discount must also be applied.⁴¹⁵ WFA is correct that the document from which BNSF took its unit cost clearly shows that a discount is applicable. WFA's failure to provide the proper reference to its source does not allow BNSF to rely on an inaccurate unit cost. Accordingly, we use BNSF's unit cost, but apply the appropriate discount.

c. Land Mobile Radio

BNSF points out that WFA also cited to the incorrect source for several components of its land mobile radio, including the base station and the voting comparator system. WFA agrees on rebuttal to use BNSF's cost for this communications equipment, and we use that here.

d. Microwave Tower Dehydration Equipment

As with microwave radio antennae, WFA agrees to use BNSF's cost (obtained from a WFA workpaper), because the proper source for WFA's unit cost was not provided, but WFA again argues that an associated discount should be included as well.⁴¹⁶ Because, WFA's workpaper shows that the discount is part of the unit cost, we use BNSF's unit cost, but apply the appropriate discount.

e. Microwave Towers

BNSF agrees to most of WFA's tower costs, with the exception of the costs for cable and waveguides. BNSF claims that it could not locate WFA's source for these costs and it therefore used other unit costs found in WFA's evidence.⁴¹⁷ WFA adheres to its original figure, pointing out that the source for these two costs was included in the same workpaper as the unit costs for other microwave tower components and that there was a discount shown in its evidence as well.

⁴¹⁴ BNSF Reply Narr. III-F-165-66.

⁴¹⁵ WFA Reb. Narr. III-F-136.

⁴¹⁶ WFA Reb. Narr. III-F-137.

⁴¹⁷ BNSF Reply Narr. III-F-167-68.

WFA also notes that both parties understated costs by failing to include a cost for site surveying and permitting.⁴¹⁸ In its supplemental reply, BNSF agrees with WFA on the surveying and permitting costs.

We agree with WFA that the document on which it based its cost for microwave towers clearly shows the unit costs for cables and waveguides,⁴¹⁹ and that the documentation clearly includes the discount for these items.⁴²⁰ Accordingly, we use WFA's microwave tower costs, including the adjustment.

f. Indexing

The parties dispute whether the communications system components—including multiplexor equipment and communications shed equipment—should be indexed. BNSF indexed the costs (which are based on 2003 figures) to the 4th quarter of 2004, using the agreed-upon general indexing. WFA argues that no indexing is necessary for these items because the cost of electronics equipment tends to go down over time. However WFA provided no evidence that these specific components have fallen in price.⁴²¹ We therefore index these costs to the 4th quarter of 2004.

G. Buildings & Facilities

Table D-7
Buildings & Facilities
(\$ millions)

	WFA	BNSF	STB
Fueling Facilities	\$12,539,570	\$16,922,667	\$12,842,819
Waste Water Treatment Plant	538,812	1,714,851	1,714,851
Locomotive Repair	8,935,818	27,064,607	8,935,958
Yard Site Cost	14,897,092	0	5,730,525
Headquarters Building	2,659,352	\$2,823,256	2,659,352
MOW/Roadway Buildings	2,440,126	3,122,026	2,501,240
TOTAL	\$42,010,770	\$51,647,407	\$34,384,744

1. Headquarters Building

WFA derived a per-square-foot construction cost for the LRR's headquarters building from the costs of a building in Darlington, PA. BNSF states in its narrative that it agrees on the

⁴¹⁸ WFA Reb. Narr. III-F-137-38.

⁴¹⁹ See WFA Reb. e-WP. "02702C.doc." at 211-12.

⁴²⁰ *Id.* at 215.

⁴²¹ WFA Reb. Narr. III-F-135.

base per-square-foot cost. However, the parties each present a different way of computing the final per-square-foot unit cost (and thus compute a different unit cost).⁴²² BNSF has not explained, however, why WFA's computation is flawed or why BNSF's computation is more accurate. Accordingly, we use WFA's unit cost per-square-foot as the best evidence of record.⁴²³

BNSF would also add a cost for a generator and site costs such as grading, drainage, and parking lots.⁴²⁴ WFA correctly points out that the costs for a generator and for the site functions are already accounted for in its construction costs.⁴²⁵

BNSF would increase slightly the size of the headquarters, based on BNSF's higher figure for the number of personnel that would be located in this building.⁴²⁶ However, we have accepted a G&A staffing level closer to WFA's proposed figure, and thus, there would be fewer employees in the headquarters than BNSF claims. Therefore, we use WFA's unit cost—with no add-ons—as well as WFA's square footage for the headquarters building.

2. Fueling Facilities

WFA proposes two fueling facilities at the Guernsey Yard. The first would be a main line facility that would serve as an express fueling station for eastbound (loaded) coal trains, intended to top off only fuel, lube oil, and radiator water. The other facility would be an "inside" fueling facility—inside the Guernsey Yard off the main line—that would perform a greater variety of locomotive maintenance services (the LRR would also utilize some direct-to-locomotive (DTL) fueling). BNSF challenges WFA's design of the two fueling facilities.

a. Main Line Facility

BNSF would add several costs to the construction of the main line facility in order to incorporate additional equipment and components that it claims would be required. WFA disputes these additions. We discuss each one below.

Additional Fluid Storage and Dispensation. BNSF asserts that the LRR's main line facility would also need to be designed to dispense air compressor lubricating oil, radiator cooling water, methanol, compressed air, soap, and waste oil, all of which it claims would be necessary to allow a locomotive to return to service quickly. BNSF therefore would add

⁴²² Compare BNSF Reply e-WP. "III F 7 Facilities.xls," worksheet "Headquarters" with WFA Reb. e-WP. "Buildings and Sites.xls," worksheet "Headquarters."

⁴²³ We use the unit cost evidence presented on rebuttal, which corrected an error pointed out by BNSF.

⁴²⁴ BNSF Reply Narr. III-F-173.

⁴²⁵ WFA Reb. Narr. III-F-141.

⁴²⁶ BNSF Reply Narr. III-F-173. See also BNSF Reply e-WP. "III F 7 Facilities.xls," worksheet "Headquarters" (showing that BNSF used a square footage of 21,576, for an increase of 76 square feet). This is contrary to the claim by WFA in its rebuttal that BNSF agrees to WFA's square footage.

distribution piping, dispensing cabinets and hoses, storage tanks, injection systems, a sanitary sewage disposal system, and a pump house to store fluids.⁴²⁷

WFA argues that, because this facility is intended to serve as an express service location that performs only basic maintenance functions, there would be no need for this facility to be capable of dispensing compressed air and the additional fluids suggested by BNSF.⁴²⁸ We agree. The main line facility would serve only as an express service facility; any functions beyond those that are basic could be performed at the inside facility, which would have compressed air and the additional fluids available.⁴²⁹

BNSF also claims that, because the LRR would use a high-utilization, high-mileage fleet, its locomotives would require more maintenance than what would be offered under WFA's plan. However, WFA has shown that its fueling facility plan is feasible, and BNSF has not refuted that. Accordingly, we reject BNSF's proposed additional costs to the main line facility.

Canopy. BNSF also claims that a canopy over the fueling platforms and fluid delivery area would be necessary to segregate storm water from waste water so as not to exceed the capacity of the publicly owned treatment works (POTW).⁴³⁰ However, BNSF has presented no evidence that the POTW capacity would be insufficient to handle both forms of water, or that it has a canopy on its own facility. Therefore, we do not include this cost.

Fuel Pump and Oil Pump. BNSF argues that, for the main line facility, the LRR would require a diesel fuel pump and a lube oil pump with higher flow rates, as well as ancillary equipment. BNSF has shown that the fuel pump specified by WFA would not be adequate,⁴³¹ and WFA did not address the additional cost for these two pumps in its rebuttal. Accordingly, we use BNSF's costs for these pumps, including the necessary ancillary equipment.

Sand Towers. Although WFA stated in its opening narrative that a sanding system would not be necessary at the main line facility, it included the cost for two towers in its opening spreadsheets. BNSF argues that the LRR would require three towers and it points out that the cost WFA used for towers does not match the quote WFA received.⁴³² On rebuttal, WFA again stated that the main line facility "was not intended to provide a wide variety of services such as sanding,"⁴³³ yet WFA continued to include the cost of two sanding towers in its rebuttal spreadsheets. Because we use WFA's fueling facility plan, under which sanding would be

⁴²⁷ BNSF Reply Narr. III-F-175-77.

⁴²⁸ WFA Reb. Narr. III-F-144-45.

⁴²⁹ See Xcel at 112 (accepting a similar fueling plan consisting of a main line and inside facility for a SARR with 139 locomotives operating over 679 track miles, compared to the LRR here, which has a fleet of 123 locomotives operating over 448 track miles).

⁴³⁰ BNSF Reply Narr. III-F-177.

⁴³¹ See BNSF Reply e-WP. "Fuel Pump Spec.pdf."

⁴³² BNSF Reply Narr. III-F-181.

⁴³³ WFA Reb. Narr. III-F-144.

performed only at the inside facility, we do not include a cost for this item at the main line facility.

Foundations and Excavation. According to WFA, BNSF added costs for foundations and excavation for the concrete platforms in the fueling facilities (although BNSF does not mention this in its reply narrative). WFA argues that “while the quote does not mention foundation and excavation for the platforms, it is well understood in the engineering field that such platforms would be of little use without the foundation.”⁴³⁴ It does not necessarily follow, however, that the contractor that would build the platform would also be the one that would excavate the land and build a foundation. In the absence of specific evidence that these costs are already included in the contractor’s fueling facility cost estimate, we include the costs for excavation and foundations.

Other Items. Finally, BNSF’s spreadsheets reveal that it increased the allowance for fittings from 20% to 30% and added a multiplier of 1.34 for a number of items. Because BNSF provided no explanation for these changes,⁴³⁵ we do not include them here.

b. Inside Facility

There exist significant differences between the parties’ costs for the inside fueling facility due to BNSF’s inclusion of costs for equipment and amenities that WFA claims are unnecessary. Each of these added costs is addressed individually.

Containment Facilities. BNSF adds a cost for containment facilities for the smaller storage tanks, but WFA argues that this would not be needed because the LRR would use double-walled tanks.⁴³⁶ BNSF has not shown that WFA’s double-walled tanks would be insufficient or that the use of a containment facility is standard industry practice. Accordingly, we do not add a cost for containment facilities.

Skylights. BNSF would include skylights in the pump house, but WFA asserts that skylights would be unnecessary because the pump house would already have sufficient indoor lighting.⁴³⁷ Because BNSF has not shown that WFA’s pump house could not be feasibly constructed and operated without skylights, we reject this proposed cost.

High Pressure Washing. BNSF proposes that 16 Hotsy Hi-Pressure steam cleaners would be needed, at a cost of \$26,536 each. WFA agrees on rebuttal that steam cleaners should be included. However, WFA claims that six steam cleaners would be sufficient, because there would only be 12 spots in the inside facility and each cleaner could be used for two spots since the cleaners are portable. WFA also notes that BNSF’s unit cost for the steam cleaners is unsupported. WFA proffers its own unit cost of \$10,268 based on a quote it received, and WFA

⁴³⁴ See WFA Reb. Narr. III-F-146.

⁴³⁵ See BNSF Reply Narr. III-F-178-82.

⁴³⁶ WFA Reb. Narr. III-F-150.

⁴³⁷ WFA Reb. Narr. III-F-151.

adds costs for portable gear set-ups, batteries, and shipping.⁴³⁸ Because WFA's cost is supported and BNSF's is not, we use WFA's cost for steam cleaners. We also agree with WFA that only six cleaners would be necessary.

8-inch Sanitary Sewer Pipes. BNSF includes a cost for 9,500 feet of 8-inch sanitary sewer pipes. WFA argues that this is likely an error since the distance from the fuel platforms to the waste treatment facility would be only 950 feet.⁴³⁹ We agree with WFA and use 950 feet of sewer pipe (as well as fittings) in our restatement.

Sand Towers. On opening, WFA proposed a sanding system consisting of 18 modules: eight modules for Track 1; six modules for Tracks 2 and 3; and four modules for Track 4. According to WFA, all the sand would be stored in a silo that would use a "pneumatic conveying system" to distribute sand to the modules.⁴⁴⁰ However, WFA's description of its sanding system does not match the costs from its spreadsheet. Its spreadsheets show a cost for six sand "towers."⁴⁴¹ BNSF argues that, based on WFA's arrangement of sanding modules, 14 sanding towers would be required. BNSF also adds a corresponding cost for an air compressor, receiver tank, and air dryer.⁴⁴²

WFA did not address this issue in its rebuttal narrative.⁴⁴³ Although WFA appears to correct its spreadsheet by taking into account the main sand storage silo, it continues to use just 6 modules. Because there is no clear explanation of WFA's proposed sanding system, we use BNSF's sand tower costs (including the associated costs for an air compressor, receiver tank, and air dryer) and its quantity of 14 sanding towers.

Other Items. As with the main line facility, BNSF proposes that a canopy be installed at the inside facility and that a cost for foundations and excavation be included. Again, we reject the cost for a canopy because BNSF has not demonstrated that it would be necessary. However, we again include a cost for excavation and foundations since WFA was unable to show that these costs were already accounted for in its contractor's price. Finally, we again eliminate BNSF's unjustified increase of the fitting allowance from 20% to 30% and its unexplained 1.34 multiplier.

c. Storage

In its reply, BNSF disagreed with WFA's costs for fuel storage tanks. On rebuttal, WFA modified its spreadsheets so that its costs are the same as BNSF's costs. Because the parties now appear to be in agreement, we use those costs for this item. The same appears to be true for

⁴³⁸ WFA Reb. Narr. III-F-151-52.

⁴³⁹ WFA Reb. Narr. III-F-152.

⁴⁴⁰ WFA Open. Narr. III-F-93-94.

⁴⁴¹ WFA Open. e-WP. "Fuel Storage Costs.xls," worksheet "Inside Fueling."

⁴⁴² BNSF Reply Narr. III-F-182.

⁴⁴³ See WFA Reb. Narr. III-F-149-53.

storage of other fluids (with the exception of the disagreement over the need for containment facilities, discussed above).

d. Helper Locomotive Facilities

In its reply, BNSF included a cost for construction of additional fueling facilities at locations where helper locomotives would be used.⁴⁴⁴ WFA argues on rebuttal that such facilities are unnecessary, as the LRR would use DTL performed by an outside contractor to fuel the helper locomotives.⁴⁴⁵ As discussed in **Appendix C—Operating Expenses, Section A.3.a.ii.—Locomotives**, we use WFA’s plan for DTL trucks and, therefore, we reject BNSF’s proposal to construct fueling facilities for helper locomotives.

3. Locomotive Repair Facility

a. Design

The parties disagree on the design of the LRR’s locomotive repair shop in several significant ways. Some of the disagreements are attributable to the parties’ differing interpretations of the scope of the repair facility’s functions. WFA argues that BNSF incorrectly assumed that the LRR facility would repair major components in-house, whereas the LRR would contract out these repair functions using a “repair-and-return or unit-exchange” plan (the major components would only be removed and replaced at the repair facility). The specific differences between the parties’ proposed designs are discussed below.

i. Walls and Floors

BNSF argues that the 8-inch walls specified by WFA would be too thin to support the locomotive shop’s ceiling and would need to be 10 inches.⁴⁴⁶ WFA responds that BNSF wrongly assumes that the shop’s walls would be load-bearing. WFA explains that, under its design (as shown in the contractor’s quote), the ceiling would be supported by the building’s steel frame.⁴⁴⁷ BNSF bases its argument on a comparison to the wall thickness at a UP repair shop. However, the fact that one other facility has thicker walls does not by itself demonstrate that WFA’s wall depths are infeasible, particularly since the walls would not be load-bearing.

BNSF asserts that WFA’s shop floor would also be too thin. WFA proposes a 6-inch thick concrete floor, while BNSF would use a 10-inch thick floor.⁴⁴⁸ WFA claims that its 6-inch floor (with a layer of steel reinforcement) would be sufficient to handle 400 to 500 pounds per square foot, an amount that exceeds the AREMA recommended level of 250 pounds per square

⁴⁴⁴ BNSF Reply Narr. III-F-185.

⁴⁴⁵ WFA Reb. Narr. III-F-147-48.

⁴⁴⁶ BNSF Reply Narr. III-F-189.

⁴⁴⁷ WFA Reb. Narr. III-F-155-56.

⁴⁴⁸ BNSF Reply Narr. III-F-189.

foot.⁴⁴⁹ Thus, we find that WFA's floor thickness is sufficiently supported⁴⁵⁰ and we use its cost for this portion of the facility's design.

ii. Heating and Ventilation System

BNSF argues that WFA's proposed heating system for the locomotive shop would be insufficient. First, BNSF claims that WFA's system would not provide enough heat, given that the doors to the shop would have to be frequently opened to allow locomotives to enter and exit. Second, BNSF claims that WFA's system relies on only one heating unit, and thus, if the unit were to fail, the entire shop would become inoperable. As for the ventilation system, BNSF argues that WFA's use of three propeller fans would be inadequate and BNSF includes a cost for additional fans.⁴⁵¹ WFA argues that the shop's employees would have to wear coats regardless of how strong the heating system is and that a stronger system would be pointless. WFA notes that the heating system would have an operating life of 30 years (if regular maintenance were performed) and a 15-year warranty. However, WFA does not address BNSF's proposal to add more fans for the ventilation system.⁴⁵²

We reject BNSF's additional cost for enhancement of WFA's heating system. A complainant only needs to provide a system that is feasible. BNSF has not shown the use of only one heating unit to be infeasible.

Similarly, BNSF has not shown that WFA's ventilation system would be inadequate. BNSF notes that a UP facility uses a fan and three power roof ventilators for each track and even more fans and ventilators for the warehouse area. However, this example does not sufficiently demonstrate that WFA's ventilation system would be infeasible. Indeed, BNSF has not shown that the UP facility is similar to WFA's facility. It is possible that the facility proposed by WFA would need a less powerful system because the shop would not be used to conduct major repairs. Accordingly, we do not include any of BNSF's additional costs for heating and ventilation.

iii. Electrical and Plumbing System

BNSF argues that WFA's electrical and plumbing system is "limited,"⁴⁵³ but as WFA notes, BNSF fails to provide details in support of that claim⁴⁵⁴ or BNSF's proposed system upgrade. We therefore reject BNSF's additional costs for these items.

⁴⁴⁹ WFA Reb. Narr. III-F-156.

⁴⁵⁰ See WFA Reb. e-WPs "CRSI Design Handbook.pdf" and "AREMA Shop.pdf."

⁴⁵¹ BNSF Reply Narr. III-F-189-90.

⁴⁵² WFA Reb. Narr. III-F-156-57.

⁴⁵³ BNSF Reply Narr. III-F-190.

⁴⁵⁴ WFA Reb. Narr. III-F-157.

iv. Shop Floor

BNSF argues that there are several flaws with WFA's design of the locomotive shop's floor and BNSF makes adjustments to correct the alleged deficiencies.⁴⁵⁵ WFA responds that, even if there are errors, they would require only "minor tweaks" that would not result in any significant cost differences.⁴⁵⁶

Specifically, BNSF argues that WFA miscalculated its pit depths (specifically, drop table pits and wheel truing machine pits) and that WFA did not account for the thickness of the pit floors. WFA contends that the depths are in accordance with BNSF's own depth and that the cost of the pit floors is included in the building's overall concrete cost. BNSF also argues that WFA's shop should have included multi-level repair tracks and reinforcement of the track structure under the embedded rails, but WFA asserts that its design does include multi-level tracks and sufficient support for the embedded rails.

WFA's design is acceptable. The record shows that the pit depths specified by WFA are actually larger than those proposed by BNSF.⁴⁵⁷ In addition, WFA's use of multi-level repair tracks and reinforced track structures for embedded rails are properly supported.⁴⁵⁸ We therefore use WFA's costs for these design components.

v. Cranes

BNSF takes issue with WFA's proposed cranes for the locomotive repair facility. First, BNSF argues that jib cranes should not be used because they would be unworkable for the type of repair work that would have to be performed. Specifically, BNSF notes that the jib cranes proposed by WFA have insufficient height to lift components off a locomotive and would not have a far enough range to reach the full length of the locomotive. Accordingly, BNSF asserts that the LRR should instead use bridge cranes on all the repairs tracks, not just some of them. For those tracks where WFA would have the LRR use a bridge crane, BNSF also argues that the crane WFA specified would not have a sufficient height.⁴⁵⁹

Regarding the height issue, WFA explains that the LRR would remove the carboodies and the cooling fans from the locomotive outside the shop and that, without these components, the cranes' height would be sufficient. WFA also notes that the jib cranes would be mounted on four-foot high pedestals. The lengthwise reach of the jib cranes would also not be a problem, according to WFA, because few components would have to be removed from the far ends of the

⁴⁵⁵ BNSF Reply Narr. III-F-192-93.

⁴⁵⁶ WFA Reb. Narr. III-F-157-58.

⁴⁵⁷ Compare WFA Reb. e-WP. "Buildings and Sites.xls," worksheet "Locomotive shop Equip," cells A26 and A28 with BNSF Reply e-WP. "III F 7 Facilities.xls," worksheet "Locomotive Shop," cells B97 and B104.

⁴⁵⁸ See WFA Open. e-WP. "Buildings and Sites.xls.," worksheet "Locomotive shop Equip," cells A22 and A29.

⁴⁵⁹ BNSF Reply Narr. III-F-190-92.

locomotives, and in those instances where that would be necessary, they would be removed with one of the bridge cranes or an outside mobile crane.⁴⁶⁰

We accept WFA's selection of cranes. As noted, WFA would perform only light repairs in its repair shop and therefore would not likely require as extensive a system of cranes as that proposed by BNSF (such as a bridge crane on every repair track). Moreover, WFA appears to have sufficiently accounted for those instances when the cranes it specified would not be adequate by having certain components removed outside the repair shop.

vi. Maintenance Equipment

BNSF also disputes WFA's proposed inventory of locomotive maintenance equipment for the repair shop. BNSF argues that WFA omitted or underestimated the quantity of several tools that BNSF claims would be needed for the LRR's high-utilization, high-mileage fleet.⁴⁶¹ WFA argues that the equipment BNSF would add would not be necessary because, as noted above, the locomotive shop would not handle the actual repairs to the major components, such as engines and turbo chargers.⁴⁶² Again, we agree with WFA that, because the LRR would not conduct all repairs in-house, there would be no need for this additional equipment.

vii. Wash House

WFA designed a one-track wash house that could clean one locomotive per hour. BNSF argues that a two-track wash house would be necessary to accommodate the LRR's fleet.⁴⁶³ WFA argues that the LRR would only need to clean five to six locomotives per day, and therefore the one-track wash house it proposes would be adequate.⁴⁶⁴ Again, a SARR's facilities merely need to be feasible, and a one-track wash house would be adequate for the LRR. We therefore do not include a cost for a two-track wash house.

viii. Site Development

WFA provides for only gravel parking and storage areas for this facility. BNSF claims that, due to the weight of locomotive components, asphalt or concrete driveways, parking areas, and storage areas would be needed.⁴⁶⁵ WFA argues that other locomotive repair facilities, including one of BNSF's own, have only gravel surfaces.⁴⁶⁶ Because BNSF has not provided

⁴⁶⁰ WFA Reb. Narr. III-F-159-60.

⁴⁶¹ BNSF Reply Narr. III-F-193-95.

⁴⁶² WFA Reb. Narr. III-F-161.

⁴⁶³ BNSF Reply Narr. III-F-195-96.

⁴⁶⁴ WFA Reb. Narr. III-F-161-62.

⁴⁶⁵ BNSF Reply Narr. III-F-196.

⁴⁶⁶ WFA Reb. Narr. III-F-162.

any evidence that its own repair shops are built with asphalt driveways, parking, or storage areas, or that WFA's proposed use of gravel surfaces is infeasible, we use WFA's cost.

b. Costs

BNSF alleges that the differences discussed above account for only some of the inadequacies with WFA's design. BNSF's witness prepared his own conceptual design for the locomotive repair facility, which he states is in accordance with AREMA design criteria. Based on this conceptual design and prices from manufacturers and Means, BNSF has restated WFA's costs for the construction of the locomotive repair shop.⁴⁶⁷ Further, BNSF notes that WFA's cost evidence, based on a quote from Kessel Construction, contains barely any information on the unit costs and quantities, or the overall construction sum.⁴⁶⁸ WFA responds in its rebuttal that BNSF's restated costs result in numerous double counts or instances where the shop would be overbuilt and WFA points to several alleged examples.⁴⁶⁹

The issue of cost essentially depends on which party's design we accept: WFA's lower-cost design or BNSF's higher-cost design. Because we reject BNSF's adjustments to WFA's proposed design for the locomotive repair facility, we use WFA's costs for construction of this facility.

4. Car Repair Shop

The parties agree that the LRR's car maintenance contractor would be responsible for providing the car maintenance shop and that the LRR would therefore incur no cost for such a facility.

5. Crew Change Facilities and Yard Offices

The parties agree on the size, location, and unadjusted construction costs for the crew change facilities and yard offices. However, as with the headquarters, the parties each present a different way of computing the final per-square-foot unit cost (and thus compute a different unit cost). As with headquarters, BNSF has not explained why WFA's computation is flawed.⁴⁷⁰ We therefore use WFA's unit cost.

WFA notes on rebuttal that BNSF added site preparation costs for each of the crew change buildings, but WFA claims that these costs are already included in its costs.⁴⁷¹ We agree

⁴⁶⁷ BNSF Reply Narr. III-F-197-98.

⁴⁶⁸ BNSF Reply Narr. III-F-187-89.

⁴⁶⁹ WFA Reb. Narr. III-F-163-65.

⁴⁷⁰ However, as with the Headquarters computation, BNSF does point out that WFA made an error in WFA's computation, even though BNSF apparently does not agree with that computation.

⁴⁷¹ WFA Reb. Narr. III-F-166.

that WFA's evidence shows that site preparation costs are already included. Therefore, we use WFA's costs without BNSF's additional costs.

6. Maintenance-of-Way Buildings

Again, the parties agree on the number, size, and location of the maintenance-of-way (MOW) buildings. However, BNSF disputes WFA's use of the same per-square-foot construction costs for the smaller MOW buildings as for the larger MOW/crew change buildings. BNSF argues that in the construction industry the per-square-foot cost increases as the size of the building decreases, due to the loss of economies of scale.⁴⁷² WFA counters that the more expensive portions of the larger buildings (such as restrooms) would be less expensive for the smaller buildings because of their smaller size (for example, the restrooms in the MOW building would be only one-quarter of the size of those in the crew change building). WFA notes that the Board scaled building costs based on size in TPMA.⁴⁷³

WFA's analogy to TPMA is not apt. In that case, the Board simply took the best least-cost evidence of record, and its decision had nothing to do with the size of the buildings.⁴⁷⁴ Here, BNSF's notion that the per-square foot cost would increase due to the smaller size of the MOW buildings is supported by Means. Moreover, WFA has not provided evidence that the cost for the bathrooms would decrease in proportion to the size of the bathroom (especially considering that BNSF's argument regarding economies of scale would seem to apply to bathrooms as well). Therefore, we use BNSF's per-square-foot cost.

The parties also disagree over site preparation costs. We agree with WFA that these costs are already included in its costs and that no additional cost is necessary. Thus, although we use BNSF's higher unit cost, we exclude its double counting of site preparation costs.

7. Wastewater Treatment

The parties dispute the design of the LRR's wastewater treatment system. WFA would construct two wastewater treatment plants: a 30,000 gallon per day plant at Guernsey and a 10,000 gallon per day plant at Donkey Creek. BNSF argues that WFA's proposed plants would account for the treatment of sanitary waste, but not industrial waste. Thus, BNSF redesigned WFA's plants to provide for the treatment of industrial waste.⁴⁷⁵

On rebuttal, WFA explains that it intentionally did not design the plants to treat industrial waste because it is environmentally preferable not to treat sanitary and industrial waste together, and because the costs for treating the two together is much higher than treating them separately. Instead, WFA proposes a system in which the different waste streams would be separated out and disposed of in the manner that is best for that particular stream. According to WFA, this

⁴⁷² BNSF Reply Narr. III-F-199-200.

⁴⁷³ WFA Reb. Narr. III-F-166.

⁴⁷⁴ See TPMA, 6 S.T.B. at 731.

⁴⁷⁵ BNSF Reply Narr. III-F-200-02.

system would include a closed circuit system that would trap emulsified suspensions and store them in drums that would be treated by a contractor.⁴⁷⁶

In SAC cases a complainant may not hold back to see the railroad's reply evidence before finalizing or supporting its own case. See Duke/NS at 15. Here, the fact that WFA did not explain or provide evidence of its wastewater treatment plan in its opening is evidenced by the fact that BNSF was not even aware that WFA intended to implement two different treatment systems. Accordingly, WFA's rebuttal evidence on this issue is inadmissible, and we use BNSF's cost.

The parties agree that a 400-gallon-per-day wastewater treatment facility would be needed for each of the MOW facilities at Reno, South Logan, and Bridger Junction, but they differ on the cost of these smaller treatment facilities. WFA has not explained how it developed its own cost or refuted BNSF's cost evidence. Accordingly, we use BNSF's cost for these treatment facilities.

BNSF also points out that WFA included the incorrect unit price for the treatment facilities' gates. WFA claims to have fixed this problem on rebuttal,⁴⁷⁷ but its spreadsheets show that it did not. We therefore restate the costs for this item in accordance with the parties' agreed-upon cost.

8. Yard Lights

a. Quantity

BNSF argues that WFA's proposed lighting configuration is inadequate because it would not provide sufficient levels of illumination for safe yard operations. BNSF claims that WFA uses a type of lamp that is designed for divided highways and that such lamps would not have the necessary "foot-candles" or "uniformity" (a measure of the light's intensity distribution). As a result, BNSF would increase the number of lights so that poles would be spaced only 100 feet apart, as opposed to 310 feet.⁴⁷⁸ WFA shows that the level of lighting it would install is comparable to, if not greater than, that used in BNSF's own yards and UP's Hinkle yard (which has only two lights).⁴⁷⁹ Because BNSF has not demonstrated that WFA's lighting configuration would be infeasible, we use WFA's yard light quantity.

b. Unit Cost

BNSF also argues that WFA's cost per yard light is understated because it omits the cost for one of the two lighting fixtures and for a bollard, which protects the light pole from vehicle

⁴⁷⁶ WFA Reb. Narr. III-F-167-69.

⁴⁷⁷ WFA Reb. Narr. III-F-169.

⁴⁷⁸ BNSF Reply Narr. III-F-203-04.

⁴⁷⁹ WFA Reb. Narr. III-F-169-71.

impacts. BNSF also asserts that WFA's per-light wiring and conduit cost is unsupported, and BNSF substitutes the Means price.⁴⁸⁰

On rebuttal, WFA agrees to include the cost of the additional fixture, but disputes BNSF's other adjustments. Regarding the cost for wiring, WFA argues that its cost was supported by Means and notes that it provided hyperlinks for the cost from its spreadsheet to its workpapers. Moreover, WFA notes that BNSF has not provided a citation for its alleged Means-based cost. WFA also argues that bollards would not be necessary because there would be little vehicular traffic in the yards and the only possible item that might strike a light pole would be a derailed train, in which event the bollard would not help anyway. WFA notes that BNSF itself does not have bollards on its light poles.⁴⁸¹

Contrary to BNSF's assertions, WFA's cost for wiring and conduits for the light poles is reasonably supported, as evidenced by the hyperlinks in its spreadsheets. Moreover, BNSF has failed to show that the use of bollards on light poles would be necessary. Accordingly, we use WFA's rebuttal lighting unit costs.

9. Site Development

The parties agree on the cost for site development, but BNSF places this under the Roadbed Preparation category of expenses while WFA places it under Buildings. As in prior cases, we include the site development cost under the Buildings category of expenses.

H. Public Improvements

Table D-8 lists the type of public improvements and associated costs that the parties estimate would be necessary along the LRR ROW.

Table D-8
Public Improvements

	WFA	BNSF	STB
Fencing	\$7,295,014	\$4,671,857	\$5,954,603
Roadway Signs	128,688	1,463,630	137,504
At-Grade Crossings	2,391,415	2,438,090	2,391,415
Crossings Protection	20,400	20,400	20,400
Grade Separation	9,620,771	24,538,800	9,620,771
TOTAL	\$19,456,288	\$33,132,777	\$18,124,693

⁴⁸⁰ BNSF Reply Narr. III-F-204.

⁴⁸¹ WFA Reb. Narr. III-F-170-71.

1. Fencing

On reply, BNSF disputes WFA's quantity and unit cost for both ROW and snow fencing. In the rebuttal narrative, WFA adopts BNSF's adjustments,⁴⁸² but its workpapers used only BNSF's unit cost with a revised quantity. We use the agreed unit costs, but restate the fence quantities to correspond with our finding on track miles.

WFA's fencing costs include costs for cattle guards. (BNSF included cattle guard costs in its roadway signs figure). WFA's opening cattle guard quantity failed to account for all at-grade crossings, as shown in BNSF's workpapers. BNSF, however, erroneously assumed that all at-grade crossings would be at double track locations. In rebuttal, WFA incorporated a revised cattle guard quantity to correct for missed crossings in their opening, but then incorrectly doubled the corrected quantity. We use the agreed unit costs for cattle guards costs, and accept WFA's corrected cattle guard quantity, but correct the double count.

2. Roadway Signs

WFA agrees on rebuttal to adopt BNSF's overall cost for signs.⁴⁸³ We use the agreed-upon unit cost, but restate the number of signs to correspond with the accepted configuration. The cost of cattle guards that BNSF included in this category is included above in fencing costs.

3. At-Grade Crossings and Crossing Protection

The parties do not agree to the quantity of crossings that would need to be constructed. Because we accept WFA's configuration, we will use their costs.

4. Overpasses

Of the 20 overpasses that would be constructed on the LRR system, WFA would include 100% of the cost for 18 overpasses and 10% of the cost for the remaining 2 overpasses. BNSF agrees to this proportion of costs attributable to the LRR. BNSF also agrees with the widths of the overpasses. However, BNSF disputes WFA's proposed overpass lengths and unit costs.

a. Lengths

BNSF argues that WFA's proposed overpass lengths would be inaccurate. Specifically, BNSF notes that WFA would use a slope of 1:1 for the abutment back slope, but that the original Orin plans show that the back slopes were built with a 2:1 proportion. BNSF also argues that WFA incorrectly assumed that the overpass at Highway 59 would be perpendicular to the railroad, when in fact it would be at a skewed angle, increasing the length.⁴⁸⁴ WFA agrees to change the length of this overpass on rebuttal, but continues to use a slope of 1:1. WFA notes

⁴⁸² WFA Reb. Narr. III-F-172.

⁴⁸³ WFA Reb. Narr. III-F-173.

⁴⁸⁴ BNSF Reply Narr. III-F-215-16.

that, although the Orin line overpasses were built with a 2:1 back slope, BNSF has not presented any evidence that WFA's proposed 1:1 slope would be infeasible.⁴⁸⁵

Although a shipper is not required to design its SARR exactly the same as the railroad it is replicating, WFA has failed to support the use of a 1:1 slope here. Because, BNSF has shown that the Orin line overpasses were constructed with a slope of 2:1, we use BNSF's overpass lengths.

b. Unit Costs

WFA based its opening unit costs for overpasses on a per-square-foot cost provided by the Ohio Department of Transportation (Ohio DOT).⁴⁸⁶ BNSF argues that WFA's cost takes into account only the cost of constructing the structure (which BNSF claims is itself too low), and excludes other necessary development costs, such as road surfacing and grading. BNSF asserts that, while the structure and track were usually constructed by the Orin Subdivision project's general railroad contractor, the project's plans show that these non-structure items were constructed by another contractor.⁴⁸⁷

BNSF developed three separate per-square-foot unit costs for the LRR's overpasses, including: 1) a cost for the structure, based on a quote from the Wyoming Department of Transportation (Wyoming DOT); 2) a cost for road surfacing, pavement markings, delineators, and traffic control, based on bids from a 1999 overpass project in Colorado; and 3) a cost for grading, asphalt, fencing, seeding, and topsoil, again based on the 1999 Colorado project. BNSF would apply the third cost only to those overpasses that were not constructed by the general contractor for the Orin Subdivision project (a total of three overpasses), as these costs for the other overpasses would have been captured in the project's earthwork costs.⁴⁸⁸

WFA disputes BNSF's unit costs. First, regarding the structure cost, WFA notes that BNSF's per-square-foot cost from Wyoming DOT is only slightly higher than WFA's per-square-foot cost from Ohio DOT. Moreover, WFA notes that BNSF has not shown the Ohio DOT cost to be infeasible.⁴⁸⁹

WFA also rejects BNSF's non-structure category costs, on the ground that such costs are generally incurred by the state or localities, not the railroad. WFA points to a Wyoming law which declares that the state will contribute to the cost of grade separations (another term for overpasses). According to WFA, this fact also explains why these services were not performed by the Orin Subdivision project's general contractor, as they were performed by contractors hired by the state and localities.⁴⁹⁰

⁴⁸⁵ WFA Reb. Narr. III-F-174-75.

⁴⁸⁶ WFA Open. Narr. III-F-77.

⁴⁸⁷ BNSF Reply Narr. III-F-217.

⁴⁸⁸ BNSF Reply Narr. III-F-218-19.

⁴⁸⁹ WFA Reb. Narr. III-F-175.

⁴⁹⁰ WFA Reb. Narr. III-F-176.

We agree with WFA regarding structure unit costs. Although BNSF has shown that its own cost for the overpass structures were different than WFA's unit cost (although not by much), this by itself does not demonstrate that WFA's unit cost would be infeasible or inadequate.

We also agree with WFA regarding non-structure unit costs. BNSF has not provided any evidence that it incurred the non-structure unit costs. Indeed, as WFA points out, the evidence suggests that these costs were likely incurred by the states or localities. BNSF itself notes that it derived its second category of costs (road paving, pavement marking, etc.) from information available from the Colorado Department of Transportation (Colorado DOT), indicating that it was Colorado DOT, not BNSF, that paid for these costs. Had BNSF actually incurred the cost for this work, it should have records of hiring and paying contractors. The fact that BNSF produced no such records indicates that it very likely was not responsible for these costs.

I. Mobilization

Mobilization involves the marshaling and movement of people, equipment, and supplies to the various construction sites and other pre-construction coordination and activities. The parties agree upon a 3.5% mobilization cost, covering initial mobilization, demobilization, and performance bonds, and agree that this factor should not be applied where mobilization costs are already accounted for in the contractors' bid.⁴⁹¹

J. Engineering

The parties agree on an engineering factor of 10% of the total construction costs, excluding land acquisition and mobilization costs.⁴⁹²

K. Contingencies

The parties agree that a 10% contingency factor is appropriate and that the factor should not be applied to land acquisition costs. However, WFA argues that the factor also should not be applied to mobilization and engineering costs. WFA contends that contingency funds are intended to cover costs for unexpected conditions, and any such unexpected conditions would not have an effect on engineering or mobilization. Thus, WFA would apply the contingency factor only to physical construction costs (roadbed preparation; track construction; bridges; tunnels; signals and communications; buildings and facilities; and public improvements). WFA claims that its position is supported by FMC and WPL.⁴⁹³

The Board has applied the contingency factor to both mobilization and engineering costs in most modern SAC cases, including Otter Tail, Xcel, WPL, and FMC,⁴⁹⁴ although it has not

⁴⁹¹ See WFA Reb. Narr. III-F-177.

⁴⁹² See WFA Reb. Narr. III-F-177.

⁴⁹³ WFA Reb. Narr. III-F-178-79.

⁴⁹⁴ The fact that the Board did not apply the contingency factor to mobilization and engineering costs in WPL and FMC is demonstrated by the Board's calculations in these two cases. WFA nonetheless relies on these two cases in support of its claim that the contingency

(. . . continued)

done so in some cases, including Duke/NS, Duke/CSXT, and CP&L (the Eastern cases). The Board has not stated its preference for one method over the other. Rather, the parties have generally agreed on a method (although the agreed-upon method has differed between cases), and the Board has merely accepted those agreements. There has been only one prior case in recent times where the parties did not agree (TMPA), and, in that case, the Board included the engineering and mobilization costs in the contingency calculation without discussion.⁴⁹⁵

WFA argues that contingencies are intended to cover only unexpected circumstances and that no unexpected circumstances would arise with regards to engineering or mobilization. WFA also asserts that the industry practice is to exclude engineering and mobilization from contingency calculations.⁴⁹⁶ However, WFA has provided no evidence in support of either proposition. Moreover, we can easily imagine a number of situations in which an unexpected problem could result in a railroad having to expend additional money and resources to alter its engineering plans or increase mobilization activities. For example, if the rail contractor were to encounter underground utilities that were not on any utility plans or maps, an engineer would have to devise a plan (including additional surveying) to either relocate the utilities or the rail line, resulting in additional engineering costs. Or if construction on one portion of the system had to temporarily cease for a significant amount of time due to an unforeseen circumstance (such as discovery of an environmental hazard or archeological site), the contractor would want to move personnel and equipment to another site, resulting in additional mobilization costs. In cases such as these, contingency funds would be needed. Thus, while a contingency fund is used to cover unforeseen costs that may arise during construction, nothing limits contingency funds to physical construction activities while excluding the planning, design, and preparatory activities, such as engineering and mobilization.

To avoid any further confusion, we clarify here that the contingency factor should be applied to engineering and mobilization costs unless the parties agree otherwise. Here, we use BNSF's evidence applying the agreed-upon 10% contingency factor to the overall construction costs, including the engineering and mobilization costs (but excluding land).

(continued . . .)

factor should not be applied to mobilization and engineering costs based on statements made by the Board in the text of those decisions.

⁴⁹⁵ We note that in PPL the parties agreed that the contingency factor should be applied to engineering and mobilization, but despite this agreement, the Board applied the factor to engineering but not mobilization. This apparent error, which benefited the shipper, was not discovered as the shipper failed to pass the threshold cross-subsidy test in that case.

⁴⁹⁶ WFA Reb. Narr. III-F-178-79.

APPENDIX E—DISCOUNTED CASH FLOW ANALYSIS

The DCF analysis first estimates the revenue stream that a SARR would need to cover operating costs and provide a reasonable return on capital. It then compares the revenue requirements of the SARR to the revenue the defendant railroad earns to determine if the revenues produced by the traffic in the group (based on existing and projected rate levels) would be greater or less than the amount required by the SARR. See generally Nevada Power, 10 I.C.C.2d at 274-77. This procedure is discussed in more detail below.

A. LRR Revenue Requirements

The estimated revenue requirements of the LRR would need to be sufficient to cover expected operating expenses and provide a reasonable return on the capital investment the LRR would make if it were to enter the marketplace to serve the selected traffic group. Because entry would not be instantaneous, the revenue requirements would need to cover the interest on debt during the construction period of the LRR. Finally, the revenue requirements must include the estimated programmed maintenance needed to maintain the rail network once constructed.

The need to deal with taxes complicates the estimation of the LRR's revenue requirements, because taxes are a function of the flow of revenue over the analysis period, and not just the present value of revenue. This means that we must determine the flow of capital recovery that, after taxes and operating expenses, would have a present value equal to the present value of the initial road-property investment, plus interest during construction, together with the present value of scheduled programmed maintenance of the railroad. It is the necessity of dealing with taxes that precludes the use of a simpler model that would directly compute the SAC constraint without reference to the pattern of capital recovery over time.

The DCF model uses an iterative approach to determine the pattern of capital recovery that would attract entry in a contestable marketplace. The first step is to assume an amount of capital recovery in the first year. This annual capital recovery is then indexed for inflation over the SAC analysis period (in this case 20 years). Indexes for the various components of the road-property investment (such as land, grading, rail) are used in the analysis.

The second step is to determine the value of the SARR at the end of the SAC analysis period. Because the assets the SARR would construct would have a longer useful life, the SARR would not need to recover the full investment in rail assets in the first 20 years. We must therefore estimate the economic value of the assets at the end of the 20-year analysis period. This "terminal value" of the SARR equals the capital recovery in the 20th year divided by the estimated real cost of capital. This calculation yields the value (at year 20) of a perpetual income stream held constant (in real terms) at the capital return projected for the 20th year.

The third step is to determine the taxes the SARR would pay. The starting point is the capital recovery in a particular year, which conceptually is the net revenue (total revenues less operating expenses) for tax purposes. The parties submit a complex tax analysis that estimates the taxes, which are a function of interest on debt, depreciation of assets, and applicable state and federal taxes. Because the SARR could take advantage of various tax loss provisions, the SARR would often pay no taxes for the first few years of operation.

The DCF model then calculates the present value of the projected capital recovery over the 20-year analysis period, together with the present value of the terminal value, minus the

present value of taxes. If this total is less than the initial capital investment, plus interest, adjusted for depreciation and programmed maintenance, then the projected capital recovery would be too low to provide a reasonable return on investment and would not entice a SARR to enter the market. In that case, the initial capital recovery in the first year is adjusted upwards (or downwards if the flow of capital recovery is too low) and the steps described above are repeated.

This iterative process continues until the model finds the point at which the flow of capital recovery would, after taxes, provide a reasonable return on the initial capital investment. Once the necessary amount of capital recovery has been determined using this iterative process, the total revenue requirements of the SARR can be determined by combining the capital recovery with the projected operating expenses.

There are several inputs needed to perform this analysis, and the parties largely agree as to most of them. The areas of disagreement are described below.

1. Cost of Equity

We use our annual cost-of-capital findings for the railroad industry for 2004 through 2005 to determine the cost of equity that would be experienced by the LRR. The latest railroad-industry cost of equity was determined after the close of the record. Nevertheless, to reflect the most current data available, and consistent with Board practice in prior SAC cases, we update the analysis to include that figure.

BNSF argues that our analysis improperly excludes the cost of preferred equity. This argument has no merit, as no Class I carrier has issued preferred equity during the relevant period. BNSF also argues that the SARR would incur a financing fee to raise the equity capital needed to construct the railroad. The Board has rejected this argument in prior cases, see, e.g., Otter Tail at E-2, and BNSF has failed to justify a departure from that precedent here.

2. Inflation Indices

a. Asset Lives

The parties agree on the asset life inputs for the DCF model with one exception: the asset life of ties used by the LRR. WFA uses asset lives for wooden ties. BNSF contends that a portion of the LRR would be constructed with concrete ties, which have a longer average life than wood ties.⁴⁹⁷ Because we use WFA's specification of wood ties, we use its calculation of asset life for ties submitted on rebuttal, which reflects the asset life for wooden ties from BNSF's workpapers.

b. Debt Amortization

In its opening evidence, WFA amortized the debt that would be issued by the LRR over the estimated assets lives of these assets that would be acquired with debt. On reply, BNSF asserted that WFA had improperly deviated from the STB's precedent of using a 20-year

⁴⁹⁷ BNSF Reply at III.G-18.

amortization schedule. It further noted that WFA had offered no evidence that the LRR could obtain debt financing with maturities of greater than 20 years. Accordingly, BNSF used the established approach of amortizing debt over a 20 year-period. On rebuttal, WFA for the first time advanced its justification for the departure from agency precedent.

As the Board has instructed parties, a departure from agency precedent must be identified and justified on opening, so that the defendant has an opportunity to respond. See Otter Tail at 4. However, without discussing the merits of WFA's argument, we reject its attempt to provide its justification on rebuttal.

c. MOW Expenses

In prior SAC cases, the parties developed an estimate of the normalized or average annual maintenance of the SARR of the 20-year DCF period. Under this approach, the staffing levels for MOW headquarters personnel and the operating expenses related to field personnel at the start of operations were assumed to remain constant throughout the DCF period. Capital-related expenditures were calculated based on the average densities projected for the SARR over the 20 years. This normalized cost was used in the Board's DCF model and adjusted only for anticipated inflation.

Here, on opening, WFA reduced the total maintenance cost by the ratio of 2004 gross-ton-miles (GTMs) to 2024 GTMs. WFA failed to explain its assumption that the LRR's personnel count for 2004 would be reduced from 2024 levels proportionately with the difference in GTMs between those two periods. BNSF has properly objected to the unexplained departure from agency precedent. Because WFA failed to justify a departure from agency precedent in its opening submission, we use the established approach here.

3. Results

Our calculation of the LRR's total revenue requirements over the 20-year analysis period is shown below. We find that the LRR's initial road property investment would be \$822,395,589; that interest during construction would be \$94,981,474; that the present value of roadway property replacement would be \$78,322,457; and that the resulting total road property investment would be \$995,699,520.

Table E-1 shows the results of the iterative methodology described above. As it shows, the net present value of the capital recovery, less taxes, plus the present value of the terminal value would be \$995,699,520. This flow of capital recovery would provide the LRR a reasonable return on its capital investment, and it would therefore be sufficient to attract entry to serve the selected traffic group.

Table E-1
LRR Capital Recovery

Year	RPI Capital Recovery (1)	Taxes (2)	Cash Flow (3) = (1) - (2)	Present Value (4)
2004	\$21,950,912	\$0	\$21,950,912	\$21,688,121
2005	88,980,402	0	88,980,402	83,061,736
2006	93,575,488	0	93,575,488	79,772,706
2007	95,725,604	0	95,725,604	74,532,452
2008	97,344,831	0	97,344,831	69,212,052
2009	98,953,650	0	98,953,650	64,246,852
2010	100,535,911	0	100,535,911	59,607,214
2011	102,156,733	0	102,156,733	55,308,993
2012	104,380,090	0	104,380,090	51,602,982
2013	107,210,424	26,726,068	80,484,356	36,371,917
2014	110,174,723	30,400,117	79,774,606	32,888,474
2015	113,204,903	31,482,393	81,422,510	30,653,177
2016	116,298,805	33,203,284	83,095,521	28,566,989
2017	119,463,644	34,666,146	84,797,499	26,620,905
2018	122,731,914	36,183,221	86,548,694	24,811,568
2019	126,107,195	37,912,700	88,194,495	23,089,018
2020	129,593,193	40,788,765	88,804,428	21,235,132
2021	133,193,747	43,571,910	89,621,837	19,564,368
2022	136,912,829	45,328,450	91,584,379	18,256,893
2023	140,754,555	47,150,994	93,603,561	17,039,283
2024	\$108,163,225	\$36,600,496	\$71,562,730	\$12,030,855
Terminal Value			***	\$145,537,836
Total				\$995,699,520

The total revenue requirements of the LRR over the 20-year analysis period, shown in Table E-2, are the sum of the capital return and the projected operating expenses.

Table E-2
LRR Total Revenue Requirements

Year	RPI Capital Recovery	Operating Expenses	LRR Revenue Requirements
2004	\$21,950,912	\$36,543,592	\$58,494,503
2005	88,980,402	156,080,331	245,060,733
2006	93,575,488	158,424,462	251,999,950
2007	95,725,604	159,945,796	255,671,401
2008	97,344,831	164,645,099	261,989,931
2009	98,953,650	168,608,472	267,562,123
2010	100,535,911	171,485,297	272,021,208
2011	102,156,733	174,913,278	277,070,011
2012	104,380,090	177,713,612	282,093,702
2013	107,210,424	179,935,571	287,145,995
2014	110,174,723	181,384,444	291,559,167
2015	113,204,903	180,956,892	294,161,795
2016	116,298,805	183,788,980	300,087,785
2017	119,463,644	188,247,634	307,711,278
2018	122,731,914	191,276,591	314,008,505
2019	126,107,195	193,480,318	319,587,513
2020	129,593,193	196,343,535	325,936,729
2021	133,193,747	198,799,816	331,993,563
2022	136,912,829	200,578,073	337,490,902
2023	140,754,555	202,025,960	342,780,515
2024	\$108,163,225	\$152,408,885	\$260,572,110

B. Overall Comparison Analysis

The second part of the DCF analysis compares the revenues the defendant is expected to earn from the traffic group against what the SARR would need to serve the same traffic. In general, if the present value of the revenue stream is less than the SARR's revenue requirements, then the analysis has not demonstrated that the challenged rate is unreasonable. If the opposite is true, then the Board must determine what relief to provide to the complainant by allocating the revenue requirements of the SARR among the traffic group and over time. Here, **Table E-3** shows that BNSF is earning less revenues from the traffic group than the LRR would need to serve that traffic.⁴⁹⁸

⁴⁹⁸ In the DCF model, both parties use the same formula to discount any overpayments or underpayments to their present value as of the SARR's initiation of service and to current value of any required reduction in revenues to the time period when revenue reductions might be required. The Board has some concerns whether these present value and current value

(. . . continued)

Table E-3
Discounted Cash Flow Analysis

Year	LRR Revenue Requirements	BNSF Forecast Revenues	Difference	Present Value	Cumulative Difference
2004	\$58,494,503	\$51,922,926	\$(6,571,577)	\$(6,492,904)	\$(6,492,904)
2005	245,060,733	218,365,649	(26,695,084)	(24,937,145)	(31,430,050)
2006	251,999,950	229,244,580	(22,755,370)	(19,867,719)	(51,297,769)
2007	255,671,401	230,924,314	(24,747,086)	(19,697,886)	(70,995,655)
2008	261,989,931	231,738,278	(30,251,653)	(21,909,907)	(92,905,563)
2009	267,562,123	238,213,921	(29,348,201)	(19,429,894)	(112,335,457)
2010	272,021,208	240,480,492	(31,540,716)	(19,049,144)	(131,384,601)
2011	277,070,011	245,000,433	(32,069,578)	(17,688,218)	(149,072,819)
2012	282,093,702	250,071,914	(32,021,789)	(16,133,597)	(165,206,416)
2013	287,145,995	255,682,820	(31,463,175)	(14,483,871)	(179,690,287)
2014	291,559,167	259,948,207	(31,610,960)	(13,289,157)	(192,979,444)
2015	294,161,795	259,320,339	(34,841,456)	(13,350,795)	(206,330,239)
2016	300,087,785	266,015,997	(34,071,788)	(12,033,482)	(218,363,721)
2017	307,711,278	276,073,315	(31,637,963)	(10,135,158)	(228,498,879)
2018	314,008,505	286,202,596	(27,805,909)	(11,064,491)	(239,563,370)
2019	319,587,513	294,244,333	(25,343,180)	(6,807,696)	(246,371,066)
2020	325,936,729	303,555,719	(22,381,009)	(5,510,641)	(251,881,707)
2021	331,993,563	313,642,880	(18,350,682)	(4,153,870)	(256,035,577)
2022	337,490,902	321,650,510	(15,840,393)	(3,290,805)	(259,329,382)
2023	342,780,515	330,611,557	(12,168,959)	(2,340,078)	(261,669,459)
2024	\$260,572,110	\$255,340,377	\$(5,231,733)	\$(977,352)	\$(262,646,812)

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calculations are correct when the computations are for quarterly periods. However, because there was no disagreement between the parties and the calculations do not impact our findings, we do not modify the parties' evidence.