44615 SERVICE DATE – AUGUST 4, 2016
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SURFACE TRANSPORTATION BOARD

DECISION

Docket No. EP 431 (Sub-No. 4)

REVIEW OF THE GENERAL PURPOSE COSTING SYSTEM

Digest:[1] Based on comments received, the Board is revising its proposed changes to its general purpose costing system, the Uniform Railroad Costing System, and inviting public comments on the revised proposal to eliminate the make-whole adjustment and to make other related modifications.

Decided: August 2, 2016

AGENCY: Surface Transportation Board.

ACTION: Supplemental Notice of Proposed Rulemaking.

SUMMARY: Through this Supplemental Notice of Proposed Rulemaking (Supplemental NPR), the Surface Transportation Board (Board) is revising its proposal to eliminate the "make-whole adjustment" that is currently applied as part of our general purpose costing system, the Uniform Railroad Costing System (URCS). The Notice of Proposed Rulemaking (NPR) in this proceeding, issued on February 4, 2013, explained that when disaggregating data and calculating system-average unit costs in Phase II, URCS does not fully take into account the economies of scale realized from larger shipment sizes, necessitating an adjustment in Phase III. This subsequent adjustment in Phase III, referred to as the make-whole adjustment, produces a step function and does not appropriately reflect operating costs and economies of scale. To better address this problem and related issues, the Board is now proposing to modify certain inputs into Phase II of URCS and to modify certain cost calculations in Phase III of URCS in order to eliminate the make-whole adjustment. The Board is also proposing certain other related changes to URCS, including proposals for locomotive unit-miles (LUM) and train miles allocations, that would result in more appropriate rail movement costs.

DATES: Comments are due by October 11, 2016; replies are due by November 7, 2016.

[1] The digest constitutes no part of the decision of the Board but has been prepared for the convenience of the reader. It may not be cited to or relied upon as precedent. Policy Statement on Plain Language Digests in Decisions, EP 696 (STB served Sept. 2, 2010).

ADDRESSES: Comments may be submitted either via the Board's e-filing format or in the traditional paper format. Any person using e-filing should attach a document and otherwise comply with the instructions at the "E-Filing" link on the Board's website, at http://www.stb.dot.gov. Any person submitting a filing in the traditional paper format should send an original and 10 copies to: Surface Transportation Board, Attn: Docket No. EP 431 (Sub-No. 4), 395 E Street, SW, Washington, DC 20423-0001.

FOR FURTHER INFORMATION CONTACT: Allison Davis at (202) 245-0378. Assistance for the hearing impaired is available through the Federal Information Relay Service (FIRS) at (800) 877-8339.

SUPPLEMENTARY INFORMATION: In 1989, the Board's predecessor, the Interstate Commerce Commission (ICC), adopted URCS as its general purpose costing system. Adoption of the Unif. R.R. Costing Sys. as a Gen. Purpose Costing Sys. for All Regulatory Costing Purposes, 5 I.C.C.2d 894 (1989). The Board uses URCS for a variety of regulatory functions. URCS is used in rate reasonableness proceedings as part of the initial market dominance determination. At later stages of rate reasonableness proceedings, URCS is used in parts of the Board's determination as to whether the challenged rate is reasonable, and, when warranted, the maximum rate prescription. URCS is also used to develop variable costs for making cost determinations in abandonment proceedings; to provide the railroad industry and shippers with a standardized costing model; to cost the Board's Carload Waybill Sample to develop industry cost information; and to provide interested parties with basic cost information regarding railroad industry operations.

URCS develops a regulatory cost estimate that can be applied to a service that occurs anywhere on a rail carrier's system. These cost estimates are developed through three distinct phases of URCS.

- Phase I occurred only when URCS was originally developed using the annual reports submitted by Class I rail carriers (R-1 reports). Regression analyses were performed to develop equations linking expense account groupings with particular measures of railroad activities.

- Annually, in Phase II, URCS takes the aggregated cost data and traffic statistics provided by Class I carriers in their most recent R-1 reports and other reports and disaggregates them by calculating system-average unit costs associated with specific rail activities.

- In Phase III, URCS takes the unit costs from Phase II and applies them to the characteristics of a particular movement in order to calculate the variable cost of that movement.[2]

[2] Although Phase III is referred to generically here, Phase III actually consists of two programs: the waybill costing program, used to calculate the variable costs of movements from (continued . . .)

The agency has periodically reviewed URCS since its inception.[3] In August 2009, the Senate Committee on Appropriations directed the Board to submit a report providing options for additional updates to URCS. In the report submitted in May 2010, the Board identified the make-whole adjustment as one area that warranted further review.[4]

By decision served on February 4, 2013, the Board issued the NPR, mentioned above, to address concerns with the make-whole adjustment in URCS. As explained in the NPR, the make-whole adjustment is applied by URCS to correct the fact that, when disaggregating data and calculating system-average unit costs in Phase II, URCS does not fully take into account the economies of scale realized from larger shipment sizes. The purpose of the make-whole adjustment, which is calculated and applied in Phase III, is to recognize the efficiency savings that a carrier obtains in its higher-volume shipments and thus render more appropriate unit costs.

URCS applies the make-whole adjustment through a three-step process. First, URCS assumes that a movement's costs are equal to that of a system-average movement. Next, URCS applies efficiency adjustments depending on shipment size—single-car (1 to 5 cars), multi-car (6 to 49 cars), and trainload/unit train (50 or more cars).[5] URCS applies the efficiency

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the Waybill Sample, and the interactive Phase III movement costing program, which calculates variable costs of movements based on user-supplied information. The waybill costing program calculates the make-whole factors, whereas the interactive Phase III movement costing program applies the make-whole factors and estimates a movement-specific cost. The interactive Phase III movement costing program is available for download on the Board's website. See also infra note 79 and accompanying text.

[3] See, e.g., Review of the Surface Transp. Bd.'s Gen. Costing Sys., EP 431 (Sub-No. 3) (STB served Apr. 6, 2009); Review of Gen. Purpose Costing Sys., 2 S.T.B. 754 (1997); Review of Gen. Purpose Costing Sys., EP 431 (Sub-No. 2) (ICC served July 21, 1993).

[4] Surface Transp. Bd., Surface Transportation Board Report to Congress Regarding the Uniform Rail Costing System, 14, 18-19 (May 27, 2010).

[5] Single-car, multi-car, and trainload/unit train are the three basic shipment size categories for purposes of the make-whole adjustment. URCS currently treats all trainload movements as unit train movements; because of its handling of the Empty/Loaded Ratio, URCS assumes that every trainload movement travels from origination to destination and back to origination. Trainload movements are also assumed to be unit train because URCS uses certain unit train statistics reported by the railroads when costing trainload movements (e.g., train miles, locomotive unit-miles, car-miles, and gross ton-miles). Although the NPR used the term "trainload" to describe these movements, because URCS treats these movements as unit train, this Supplemental NPR will use the term "unit train," which better reflects how those shipments are costed.

Additionally, URCS treats intermodal traffic as a type of "hybrid" category. Prior to 1997, URCS treated intermodal traffic as single-car movements. In 1997, the Board concluded
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adjustments to higher-volume movements, thereby reducing the system-average unit costs of such movements.[6] Last, URCS redistributes the total savings obtained in all of the higher-volume shipments (the shortfall) across all of the lower-volume shipments, such that the sum of variable costs across all of the carrier's movements remains the same.

The NPR identified two primary concerns with how the make-whole adjustment is currently applied by URCS. First, the efficiency adjustments cause a step function because the adjustments generally reduce the system-average unit costs by various set percentages depending on whether the movement is classified as unit train, multi-car, or single-car. As a result, the current URCS methodology generally reflects economies of scale only between single-car and multi-car shipments and between multi-car and unit train shipments, but it does not reflect any economies of scale within those shipment sizes. For example, the system-average unit cost for a multi-car movement is the same whether it is a 6-car or 49-car shipment. Likewise, the unit cost for a unit train movement is the same, whether it is a 50-car or 135-car shipment (or anywhere in between). At the same time, however, the system-average unit cost for a 49-car multi-car shipment is significantly higher than the unit cost for a 50-car unit train shipment. In other words, hard break points exist that may not reflect true efficiency differences between single-car and multi-car shipments, and between multi-car and unit train shipments.

Second, the make-whole adjustment redistributes the shortfall across single-car and multi-car movements on a per-car basis, which not only fails to account for economies of scale but also increases the size of the step function. For example, under the per-car method for switching-related costs, costs are increased in proportion to the number of cars switched (i.e., a two-car movement is costed as twice as expensive to switch as a one-car movement, a three-car movement is three times as expensive to switch as a one-car movement, etc.). By not decreasing the per-car costs as the number of cars in the shipment increases, the redistribution of savings does not adequately account for economies of scale. Additionally, the redistribution of savings increases the size of the step function because the add-ons increase costs per car across single-car and multi-car shipments, but do not apply to unit train shipments.[7]

These break points, or steps, create the opportunity for parties to use URCS to manipulate regulatory outcomes. The same problem occurs with locomotive unit-mile (LUM) allocation,

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that more accurate costs would be obtained by applying to intermodal traffic many, though not all, of the efficiency adjustments applicable to unit train movements. Review of Gen. Purpose Costing Sys., 2 S.T.B. 659, 663-665 (1997).

[6] There are 14 efficiency adjustments, any number of which may apply to a particular movement. See Appendix A.

[7] For example, under the current system, the costs are increased in proportion to the number of cars. If the shortfall redistribution for a one-car shipment is $1,000, then the shortfall redistribution for a 49-car shipment is $49,000. But because the add-ons do not apply to unit train shipments, there is no redistribution of costs to a 50-car shipment.

which also produces a step function between multi-car and unit train shipments. The NPR proposed to address these concerns regarding the make-whole adjustment and LUM allocation. Rather than refining the make-whole adjustment in Phase III, the NPR proposed to reflect the impact of economies of scale in calculating the system-average unit costs in Phase II, thereby eliminating the need for a modification of those costs in Phase III. To that end, the NPR proposed changes to switching costs related to switch engine minutes, equipment costs for the use of railroad-owned equipment during switching, station clerical costs, and car-mile costs, as well as other related changes to URCS. The NPR also proposed changes to the LUM allocation.

To assist commenters in evaluating those proposals, the Board issued a decision on April 25, 2013, in which it made available certain information, including the uncosted and costed 2011 Waybill Sample, the source code used to cost the Waybill Sample and the intermediate outputs that result from using the source code, a small record set, and descriptions to changes in the calculations of certain Phase III line items. The Board received comments and reply comments on June 20, 2013, and September 5, 2013, respectively.[8] After considering the comments, the Board is modifying its earlier proposal.

General Comments

Commenters expressed two general concerns about the NPR, which the Board has considered in creating the revised proposal set forth in this Supplemental NPR. First, some commenters cautioned against pursuing "piece-meal" changes to URCS, arguing that piece-meal changes run the risk of skewing results and that the Board should consider a more comprehensive review of URCS.[9] Second, a number of commenters expressed the concern that the proposals in the NPR lack empirical support and would change long-standing cost allocation factors that were derived from industry studies. To that end, many of the commenters propose that the Board conduct special studies that will provide the empirical support necessary for the proposed changes.

We understand the arguments about piece-meal changes to URCS, but we do not believe that improvements to our costing system should be ignored when incremental changes can be implemented to address specific problems or concerns that have been identified with a portion of that system. Nor do we believe that it is necessary for the Board to have the types of empirical

[8] The following parties filed comments in this proceeding: Arkansas Electric Cooperative Corporation (AECC); Association of American Railroads (AAR); BNSF Railway Company (BNSF); Montana Grain Growers Association (Montana Grain); Samuel J. Nasca, on behalf of United Transportation Union-New York State Legislative Board; Tom O'Connor Group; Union Pacific Railroad Company (UP); Western Coal Traffic League (WCTL). Additionally, joint comments were filed by the American Chemistry Council and others (referred to collectively as ACC) as well as by the Alliance for Rail Competition and others (referred to collectively as ARC).

[9] AAR Comment 9, 21; V.S. O'Connor & Legieza 10-11; UP Comment 2, 18.

data suggested by commenters in order to move forward with the specific changes to URCS proposed in this rulemaking. The changes proposed here can be properly supported by reasonable economic judgments based on sound principles of cost causation and cost allocation. Moreover, both the need for improvement and the extent to which changes can be implemented without undue burden must be considered. The special studies that would reexamine all of the underlying empirical studies would primarily place a burden on both the rail industry's and the agency's resources. Because the modest changes proposed here can be made to correct or mitigate specific problems with the make-whole adjustment and the related LUM and train mile allocations without such studies,[10] the Board believes this is the prudent course of action. In taking this approach, the Board is guided by the "practicality principle" set forth in the Final Report of the Railroad Accounting Principles Board (RAPB), which states that "cost and related information . . . must generate benefits that exceed the costs of providing it."[11] As the Board has previously stated,

> [i]n considering costing modifications, [the Board] cannot demand perfection. Rather, [the Board bases its] decision on whether a proposed change represents an improvement over current costing procedures, and whether such a change can be implemented at a reasonable cost and without undue burden on the railroad industry, the shipping public or the agency.

Review of Gen. Purpose Costing Sys., 2 S.T.B. 659, 660-61 (1997).

The NPR in this proceeding focused on an identified problem in URCS: the occurrence of break points, between shipment sizes, that do not appropriately reflect operating costs and economies of scale, and the problematic allocation of LUMs that also creates break points. Several commenters acknowledge these current flaws in URCS.[12] Our goal here, as in the past, is to make "an improvement over current costing procedures." As discussed above, it is possible to modify URCS to address these issues without conducting special studies, which, under the circumstances, could place an undue burden on "the railroad industry, the shipping public, or the agency." However, the comments received argued that our proposed methodologies for calculating certain Phase II costs did not properly reflect the causation factors for those costs.

As discussed more fully later in this decision, the Board has determined that certain of the NPR's proposals for changing the method of calculating the costs of various types of operations

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[10] Although the NPR did not include a proposal on train miles, the Board is addressing train mile allocation in this Supplemental NPR because, as explained below, it has the possibility of producing a step function.

[11] RAPB Final Report 17. See also Adoption of the Uniform R.R. Costing Sys. As A General Purpose Costing Sys. For All Regulatory Costing Purposes, 5 I.C.C.2d 894, 909 (1989); 49 U.S.C. § 11162(b)(3), (4).

[12] AAR Comment 13; BNSF Comment 5; Montana Grain Comment 1; UP Comment 3; WCTL Comment 7.

in Phase II, such as switching costs, raised legitimate concerns about cost causation and inadvertently affected other outputs of Phase III. After considering the comments and engaging in further analysis, we now believe that, with modifications to the NPR's proposals, the existing efficiency adjustments and cost relationships in Phase III can form the basis for changes that remedy the problems in the current make-whole adjustment and related Phase III outputs. Therefore, the Board proposes in this Supplemental NPR certain modifications to inputs in Phase II and calculations in Phase III that would more appropriately adjust system-average unit costs.

To assist commenters in reviewing this revised proposal, the Board will make its workpapers (which contain confidential information from the Waybill Sample) available subject to our customary Confidentiality Agreement. 49 C.F.R. § 1244.9.[13] The workpapers contain sample calculations and supporting data related to: (1) Switch Engine Minutes, (2) Railroad-Owned Equipment, (3) Station Clerical, (4) Car-Miles, and (5) Other Related Changes.

Revised Proposal

The revised proposal would eliminate the need for the make-whole adjustment and address additional step functions in URCS relating to LUMs and train miles. Below, proposed changes to the current efficiency adjustments— switching costs, railroad-owned equipment costs, station clerical costs, and car-mile costs—are first discussed. Other related proposals are then discussed.

1. Switching Costs Related to Switch Engine Minutes

The NPR proposed to adjust how URCS calculates the operating costs for switching cars, regardless of car ownership. These costs are referred to as "switch engine minute" (SEM) costs. Currently, in Phase II, URCS calculates SEM costs on a per-carload basis, which does not reflect economies of scale as shipment size increases. In the NPR, the Board stated that, operationally, a shipment of rail cars is generally connected into a contiguous block of cars, and is handled as a contiguous block from origin to destination. The Board therefore proposed to calculate SEM unit costs in Phase II on a per-shipment basis for all five types of switching accounted for by URCS.[14]

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[13] To obtain the workpapers, parties should submit a written request to the Board's Office of Economics and reference this proceeding. Parties may seek a protective order for subsequent pleadings using this information. If participants are permitted to file their pleadings under seal, they also will be required to file a public version with confidential information redacted.

[14] Those five types of switching are: (1) industry switching; (2) interchange switching; (3) intraterminal switching; (4) interterminal switching; and (5) inter-train & intra-train (I&I) switching. Industry switching is switching that occurs at origin or destination points. Interchange switching is switching that occurs at intermediate yards between different carriers, as opposed to I&I switching, which occurs on a rail carrier's own lines. Intraterminal switching

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Although certain commenters acknowledge that allocating SEMs on a purely per-carload basis may not be appropriate, they also object to the NPR's proposed allocation of SEMs on a purely per-shipment basis because switching costs are, to some extent, dependent upon the number of cars in the block.[15] Specifically, commenters argue that there is both a time component and an event component to switching, and that the time required to switch cars is influenced by the number of cars in the shipment.[16] Several commenters therefore recommend that the Board allocate a portion of switching costs on a per-shipment basis and a portion on a per-carload basis. Such an approach would require a determination of the appropriate percentage split between carloads and shipments and likely involve statistical studies that would be time-consuming and costly. While such studies might be justifiable if there were no less costly alternative to address the problem, the Board has concluded that the cost relationships used to develop the Phase III efficiency adjustments can be used to recognize and quantify the time- and event-related components of switching costs in Phase III in a way that eliminates the problems with the existing make-whole adjustment.

Thus, rather than changing the calculation of SEM unit costs in Phase II as proposed in the NPR, the Supplemental NPR would adjust how Phase III allocates SEMs to account for economies of scale and recognize the fact that switching costs include both a time component and an event component. Under the revised proposal, Phase III would adjust the system-average unit costs by incorporating both the time component of switching (carload basis) and the event component of switching (shipment basis). In this way, the efficiency adjustments that are reflected in Phase III would no longer result in a step function and would reflect economies of scale for every different shipment size.

Several commenters argued that the efficiency adjustments in Phase III were developed using empirical data,[17] and that these existing cost relationships in URCS should be maintained. This proposal maintains the existing cost relationships in URCS to the extent practicable. This Supplemental NPR proposes to incorporate the current efficiency adjustments, which were developed using empirical data, by maintaining the percentage reduction for unit train traffic

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is the switching of cars by one carrier within a rail terminal, and interterminal switching is the switching of cars between carriers within a rail terminal. For purposes of costing the Waybill Sample, only movements that travel a total distance of less than 8.5 miles are considered intraterminal or interterminal switching.

[15] See, e.g., AAR Comment 12, 13, 16; ACC Comment 8; BNSF Comment 7-8; UP Comment 4-5.

[16] For example, if the switching movement requires moving cars from one track to another, or if it requires the cars to be inspected and the air brakes to charge, then the amount of time it takes to switch will be dependent on the number of cars.

[17] See AAR Comment 16; ACC Comment 2; BNSF Comment 11-12.

currently embodied in the Phase III efficiency adjustments.[18] See Appendix A (current make-whole efficiency factors). For example, for industry switching, URCS currently applies a 75% reduction in assigned SEMs for unit train traffic, and a 50% reduction in assigned SEMs for multi-car traffic, by way of a step function. The proposal would continue applying the 75% reduction for unit train traffic, but would now achieve this reduction by way of an asymptotic curve. The efficiency reductions for single-car and multi-car traffic would no longer apply; rather, the efficiencies associated with such movements would be allocated through the asymptotic curve.

In order to create this asymptotic curve, the Board would employ a new concept called the Carload Weighted Block (CWB) Adjustment. The CWB Adjustment applies a weighting to a block of cars based on a percentage of the number of cars in that block.[19] The CWB value is calculated as the number of cars in a block multiplied by the percentage by which switching varies by carload, plus the number of blocks multiplied by the percentage by which switching varies by block—thus reflecting the fact that switching costs are dependent in part on the number of cars in a block, due to the time and event components of switching.

To determine the appropriate percentages by carload and block in the CWB value, while also maintaining the existing cost relationships in URCS, the Supplemental NPR proposes to solve for the values that cause SEMs to be reduced at the minimum unit train level by the same amount as is currently done by URCS.[20] This determination would be done annually, by railroad, using data in the Waybill Sample for each type of switching. Then, to convert system-average SEMs from Phase II to SEMs in Phase III that reflect economies of scale, the Supplemental NPR proposes the following calculation, where the CWB Ratio represents SEMs per CWB divided by SEMs per carload:

$$Phase\ III\ Adjusted\ SEMs = (Phase\ II\ System\ Average\ SEMs) * (CWB\ Ratio) * (CWB)$$

These calculations represent the proposed relationship between current Phase II calculations, which are done on a per-carload basis, and the proposed Phase III calculations, which are done on a per-CWB basis. As explained, these calculations eliminate the current step function and incorporate current URCS efficiency adjustments at the unit train level. This adjustment is referred to as the CWB Adjustment. To see the impacts of this proposal on SEMs

[18] Although the current make-whole adjustment for unit train traffic is applied starting at 50 cars, the Supplemental NPR proposes to apply these revised adjustments starting at 75 cars. See infra p. 25.

[19] A "block" is defined as the number of cars on the waybill moved as a contiguous unit from origin to destination. For carload traffic, the number of blocks is always one.

[20] To illustrate, for carload industry switching, the appropriate carload and block percentages (see table in Appendix B) would be calculated by solving for a 75% reduction (see Appendix A, row "L301," column "Unit Train") at 75 cars (the proposed definition of unit train). See infra p. 25 (proposing to define unit train starting at 75 cars).

and how this proposal would be calculated and applied, refer to Appendix B (demonstrating how the CWB reflects economies of scale) and workpaper "EP431S4_SEMs.xlsx" (showing how the CWB variables are calculated and quantifying the impact of the CWB Adjustment).

The CWB Adjustment is more appropriate than the current make-whole adjustment for several reasons. Although the current methodology generally reflects economies of scale between single-car and multi-car shipments and between multi-car and unit train shipments, it does not reflect any economies of scale within those shipment sizes. The CWB Adjustment does reflect increasing economies of scale as shipment size increases. It also has the advantage over the current methodology of not producing a step function and not requiring an add-back of the shortfall. Finally, with the possible exception of I&I switching, discussed below, the CWB Adjustment better reflects the cost causality principle from the RAPB's Final Report[21] because of the changing economies of scale for every different shipment size.

This revised proposal, which makes changes to Phase III through the CWB Adjustment rather than Phase II, obviates the need for changes to the Board's reporting requirements by the railroads. Thus, the NPR's proposed changes to the Annual Report of Cars Loaded and Cars Terminated (Form STB-54) and the Quarterly Report of Freight Commodity Statistics (Form QCS) are no longer necessary under the revised proposal.

Below, two specific issues related to the CWB Adjustment are discussed: I&I switching and the definition of "shipment."

a. I&I Switching

The CWB Adjustment for I&I switching would be applied as described above. However, unlike the other types of switching, application of the CWB Adjustment as described above to I&I switching results in decreasing total I&I switching costs as shipment size increases.[22] In other words, the total I&I costs for a two-car shipment would be slightly less than for a one-car shipment, a three-car shipment would be slightly less than a two-car shipment, a four-car shipment would be slightly less than a three-car shipment, and so on until the total I&I cost for a unit train shipment is zero. See Appendix B (depicting the negatively sloped total I&I switching cost curve).

[21] "Causality is the primary criterion for cost assignment. Cost is the amount (usually expressed in monetary terms) of input resources used to achieve a specified quantity of activity or service. Causality links cost with an activity or service." (RAPB Final Report 9.)

[22] This negative slope would not be reflected in URCS Phase III switching costs when I&I switching is combined with industry switching. See workpaper "EP431S4_SEMs_IndustryAndI&I.xlsx." Since not all movements receive the other types of switching, see supra note 14, a graph of I&I switching and industry switching depicts whether total switching costs for a movement will have a negatively or positively sloped curve.

The CWB Adjustment solution produces a negative slope in total I&I switching costs because URCS currently assumes a 100% efficiency reduction (i.e., zero I&I switching) for unit train shipments, reflecting the assumption in URCS that there is no I&I switching associated with unit trains. See Appendix A (current make-whole efficiency factors). The CWB Adjustment proposes to maintain the existing efficiency reductions for unit trains by solving for the values that cause SEMs to be reduced at the unit train level by the same amount as is currently done by URCS. Because the I&I cost curve goes from a positive value for a one-car shipment to a value of zero for a unit train shipment, it results in a negative total I&I cost curve. This is in contrast to the other types of switching, which have an efficiency reduction of less than 100% at the unit train level, thus resulting in a positive value and total cost curve.

Although this negative slope for I&I switching may not be perfectly reflective of costs for actual railroad operations, the Board has considered alternative solutions and found this proposal to be the most appropriate solution under the circumstances. For instance, one alternative solution could be to reconsider the current URCS assumption that unit train shipments receive no I&I switching.[23] However, for the reasons stated earlier, the Board seeks to avoid the unwarranted administrative and public burden associated with a special study to establish a new efficiency adjustment for I&I switching where modifications that account for these impacts can be made without such studies. Parties may, however, submit evidence on I&I switching for unit train traffic for the Board's consideration, if they so choose. Another solution would be to have a methodology that produces a positively sloped I&I switching cost curve for single- and multi-car shipments; however, any such solution would, by definition, require a negative step function in order for the cost to drop to zero for unit trains. Because a major goal of this Supplemental NPR is to eliminate step functions, the Board believes the use of the CWB Adjustment for I&I switching is superior.

[23] Evidence submitted by parties in rate cases has suggested anecdotally that certain unit trains may receive I&I switching for bad-order cars. See, e.g., Tex. Mun. Power Agency v. BNSF Ry., NOR 42056, slip op. at 45 (STB served Mar. 24, 2003); Pub. Serv. Co. of Colo. v. BNSF Ry., NOR 42057, slip op. at 128 (STB served June 7, 2004). However, such evidence is not broad enough to be used to develop a new efficiency adjustment for I&I switching in this proceeding.

b. Definition of "Shipment"

As noted in the NPR, any proposal to calculate SEM costs on a per-shipment basis (whether entirely or in part) requires the Board to define "shipment." The NPR proposed to define "shipment" as a block of one or more cars moving under the same waybill from origin to destination. Some commenters suggested that this definition was inappropriate because how traffic moves operationally and how it is waybilled are not necessarily synonymous.[24] In particular, commenters argued that, while the Board's definition may be sufficient for carload traffic, it was inappropriate for intermodal traffic.[25]

BNSF and AAR contend that the Board should undertake a special study to determine how to define intermodal shipments for costing purposes.[26] In the alternative, BNSF suggests that the Board could require each Class I to report annually the average number of intermodal flatcars moving together as a block and use that reported number (annualized over three years) as that carrier's number of flatcars in a "shipment."[27] In their joint verified statement, AAR's witnesses, Baranowski and Fisher, estimated the average size of an intermodal shipment to be 10 intermodal flat cars, though they did not provide their methodology for how this figure was developed.[28]

The Board does not believe that a special study is required in order to define a shipment. In the NPR, the Board stated that, operationally, a shipment of rail cars is generally connected into a contiguous block of cars. Although the terms "shipment" and "block" are sometimes used interchangeably, the former is generally a billing concept, while the latter is generally an operational concept. For the purposes of discussing intermodal shipments, the distinction is important, as an intermodal shipment may, for costing purposes, use only a partial block, as further described below.

As noted, switching is performed on a block of cars. For carload shipments, the number of blocks for a shipment is always one. For intermodal shipments, however, the number of trailer container units (TCUs) in a shipment may not fill an entire car, such that the time, and thus costs, to switch the number of TCUs in an intermodal shipment should be prorated. For example, if the average number of TCUs per flatcar is four, the time required to switch a shipment of one TCU should be prorated to 25% of the time required to switch the entire flatcar. As another example, a shipment of six TCUs will require two flatcars in a block, though the time

[24] AAR Comment 13-15; ACC Comment 7-8; ACC Reply, V.S. Mulholland 4.

[25] AAR Comment 14-15; ACC Comment 7-8; BNSF Comment 9-10.

[26] AAR Comment 14-15; BNSF Comment 9-10.

[27] BNSF further states that, in 2012, it had an average of 5.29 containers per flatcar. BNSF Comment 9 (citing 2012 BNSF R-1 report, Schedule 755).

[28] See AAR Comment, V.S. Baranowski & Fisher 13.

to switch the block should be prorated to 75% for that shipment, as the number of TCUs in the shipment only accounts for six of the eight available TCU spaces in the block of two flatcars.

Thus, the Supplemental NPR proposes to adjust the NPR's definition slightly by defining a shipment as a block of one or more cars *or TCUs* moving under the same waybill from origin to destination. The Board believes that such a definition is appropriate for both carload traffic and intermodal traffic, and that the difference between the two is that the time, and thus costs, to switch an intermodal shipment may need to be prorated based on the number of TCUs in the block being switched. To perform this calculation, the Supplemental NPR proposes to use the average number of TCUs per flatcar that is reported by the railroads on line 134 of R-1 Schedule 755.

Some commenters pointed out that intermodal trailers or containers typically move under a separate waybill even if the TCUs are placed on flatcars that move in multiple flatcar blocks. We take this to mean that, even if multiple TCUs are traveling together from origin to destination, each TCU may be billed individually on a separate waybill. AAR further pointed out that "this distinction ha[d] not been relevant to URCS costs…calculated on a per car basis," but that the Board's proposal in the NPR "to rely on a per shipment costs" highlighted "the disconnect" between how traffic moves operationally and how it is waybilled.[29] The Board's Supplemental NPR eliminates this concern because the CWB Adjustment for intermodal switching now finds that intermodal switching is based on 100% of the number of cars. As such, there is no difference between the proposal in this Supplemental NPR and how URCS currently treats intermodal switching (i.e., on a per car basis).

It is worth noting that, under the proposal and proposed definition of a shipment, billing multiple TCUs individually rather than as a shipment may increase the allocation of station clerical costs to those TCUs. However, we perceive no misallocation of costs in this outcome because such a practice would require more clerical resources to process multiple waybills rather than a single waybill.

[29] AAR Comment 14.

2. Equipment Costs for the Use of Railroad-Owned Cars During Switching

Another category of system-average unit costs associated with switching pertains to the equipment costs for the use of railroad-owned cars. These costs are distance- and time-related.[30] In the NPR, the Board concluded that these costs are properly accounted for on a per-car basis and therefore proposed to continue calculating these costs on a per-car basis. However, the NPR would have affected the calculation of these costs by eliminating the Phase III efficiency adjustment.

Commenters disagree with the Board's proposal to eliminate the Phase III efficiency adjustments for these costs.[31] They argue that URCS currently recognizes certain efficiencies that were derived from special studies conducted by the ICC, and that there is no evidence that these efficiencies have been reduced or eliminated. As such, commenters argue that the Board's proposal should account for these efficiencies. UP and BNSF, for example, recommend that the Board divide costs into an event-related component and a shipment size-related component, similar to SEM costs.[32] WCTL asks the Board to retain the efficiency adjustment, and acknowledges that this would necessitate the retention of a make-whole factor.[33]

Additionally, AAR and BNSF ask that, regardless of whether the Board proceeds with its proposals in the NPR, it fix what they describe as a "flaw" or "misallocation problem" in how URCS calculates the costs for railroad-owned equipment when applying the make-whole adjustment.[34] They argue that URCS improperly distributes cost savings associated with the efficiency of one car type to other car types. AAR's witnesses, for example, argue that because the costs for railroad-owned cars are composed primarily of ownership and lease costs that are specific to individual car types, URCS is distributing ownership costs for one car type to shipments using a different car type.[35]

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[30] In other words, the costs for using a railroad-owned car are based both on the distance it travels and the time it is being used during the switching process. For example, if a railroad-owned car travels two miles during an interchange switch, and is held at the interchange for three days, the costs for the use of that car will be based both on the two-miles it traveled and the three-days it was held.

[31] See AAR Comment 17; BNSF Comment 11-12; UP Comment 11-12; WCTL Comment 8-9.

[32] See BNSF Comment 11-12; UP Comment 11-12.

[33] See WCTL Comment 9; WCTL Reply 9.

[34] See AAR Reply 7; BNSF Reply 4-5.

[35] AAR Reply, V.S. Baranowski & Fisher 11.

Because commenters urge retention of the existing cost relationships to the extent that the efficiency adjustments in URCS were developed using empirical data, we have incorporated those adjustments into the revised proposal to the extent practicable. However, we also agree that the current efficiency adjustments are distributing savings from a few equipment types that have a high percentage of unit train service onto the costs of other types of equipment that have a high percentage of single-car service. By doing so, URCS overstates the equipment costs of equipment moving in single-car service and understates the equipment costs of equipment moving in unit train service.

Accordingly, the Board now proposes to modify the Phase II inputs for car-days and car-miles to reflect the current efficiency adjusted values for the predominant shipment size of each particular car type. Specifically, the Supplemental NPR proposes the following: (1) if a majority of shipments for one car type (greater than 50%) move by unit train, then the Supplemental NPR proposes to use the efficiency adjusted inputs for car-days and car-miles; (2) if the predominant shipment size for that car type is single-car, then the Supplemental NPR proposes to use the unadjusted inputs for car-days and car-miles; and (3) if there is no majority of shipments moving by a particular shipment size, the Supplemental NPR proposes to apply the efficiency adjustments depending on whether the particular adjustment reduces costs for multi-car shipments or not.

Appendix C shows sample applications of this proposal and lists of the predominant shipment size for each car by type in 2013. See also workpaper "Equipment Counts_2013.xlsx." For example calculations of the efficiency adjusted values for railroad-owned equipment by car type and shipment size, see workpaper "EP431S4_RR Owned Equipment.xlsx." Supporting data is found in workpapers "Phase II New Eqpt Factor Impacts_EAST2013.xlsx" and "Phase II New Eqpt Factor Impacts_WEST2013.xlsx."

Under this proposal, not only would the step function that results from application of the make-whole adjustment be eliminated, but the misallocation identified by AAR and BNSF also would be corrected and the efficiency adjustments currently reflected in URCS would be maintained.

Because this proposal incorporates the current efficiency adjustments into the Phase II inputs, the Phase II unit costs for some equipment will increase depending on the equipment's assigned efficiency adjustment. Specifically, for any equipment that receives an efficiency adjustment (i.e., any equipment listed in Appendix C with a reduction greater than 0%), this proposal would reduce the Phase II inputs for that equipment (e.g., from two car-days to one car-day for car-days loading and unloading). This, in turn, would increase the unit costs for that equipment because the same equipment expenses would be divided by a smaller number of units. There would be no change to the unit costs in Phase II for equipment whose inputs do not change.

These changes in unit costs in Phase II would flow through to the variable costs calculated in Phase III. Although the change in Phase II unit costs may be offset by the concurrent reduction in car-days or car-miles, equipment whose unit costs have increased in Phase II may still see an increase in variable costs because this proposal corrects the

misallocation described above. In other words, the efficiency savings currently applied to that equipment will no longer be transferred to other equipment. For equipment whose Phase II unit costs would not change (i.e., any equipment listed in Appendix C with an efficiency reduction of 0%), the Phase III variable costs for that equipment would nonetheless also be impacted by this proposal for the same reason. That is, the variable costs for that equipment would decrease in Phase III because this proposal corrects the aforementioned misallocation associated with railroad-owned equipment.

3. Station Clerical Costs

The NPR proposed to adjust how URCS calculates station clerical costs, which are the administrative costs associated with a shipment. Currently, in Phase II, URCS calculates station clerical costs on a per-car basis, which does not reflect economies of scale. As a result, in Phase III, URCS applies an efficiency adjustment for multi-car and unit train shipments and adds those efficiency savings onto single-car shipments.

In the NPR, the Board proposed to calculate station clerical costs in Phase II on a per-shipment basis. Although commenters agreed that there are economies of scale associated with station clerical costs, they objected to the Board's proposal. Some commenters agreed with the Board's proposal on theoretical grounds, but objected because the proposal was not supported by empirical evidence.[36] Others argued that allocating station clerical costs on a purely per-shipment basis would be inappropriate because there are in fact some costs that vary with the number of carloads.[37] As with SEM switching costs, AAR, BNSF, and UP recommend that the Board adopt an approach that splits station clerical costs into a time-related component and an event-related component.[38]

After considering the comments, we propose here to continue calculating station clerical costs on a per-car basis in Phase II and, for multi-car and unit train shipments, continue applying the same efficiency adjustments that URCS applies now in Phase III. Unlike SEM costs or railroad-owned equipment costs, the adjustment currently applied by URCS for station clerical costs does not include a break point between multi-car and unit train shipments because the reduction is based on a function where 75% of costs are based on the carloads and 25% of costs are based on the shipment, resulting in an asymptotic curve.

However, there is a large break point between single-car and multi-car shipments because URCS applies an efficiency adjustment to multi-car shipments, but not to single-car shipments. Additionally, URCS adds the efficiency savings of larger shipment sizes onto single-car shipments, thus increasing the size of the step function. To eliminate this break point, Phase III would be adjusted to allocate station clerical costs in single-car shipments to account for

[36] See ARC Comment, V.S. Fauth 12; WCTL Comment 10-11.

[37] See ARC Comment, V.S. Fauth 12; UP Comment 10-11; WCTL Comment 10-11.

[38] See AAR Comment 16; BNSF Comment 12-13; UP Comment 10-11.

economies of scale by applying the concept of the CWB Adjustment discussed earlier. To determine the appropriate percentage split between carload and block in the CWB value for single-car shipments only, the Supplemental NPR proposes to solve for the values that cause station clerical costs to be reduced at the six-car level by the same amount as is currently done by URCS. As with SEMs, this determination would be done annually, by railroad, using data in the Waybill Sample. Thus, by applying the CWB Adjustment, the Supplemental NPR proposes to eliminate the current step between single-car and multi-car shipments while also maintaining the current URCS efficiency adjustments for multi-car and unit train shipments. See Appendix D (depicting the elimination of the current step between single-car and multi-car shipments) and workpaper "EP431S4_StationClerical.xlsx" (quantifying the impacts of the CWB methodology on station clerical and showing how the CWB variables are calculated and how it differs from the current methodology).

For intermodal shipments, URCS currently applies a station clerical efficiency adjustment starting at six flatcars. As with carload traffic, the Supplemental NPR proposes to continue to use the current efficiency adjustments for multi-car and unit train shipments. However, for intermodal shipments with fewer than six flatcars, the Supplemental NPR proposes to apply the CWB Adjustment and solve for the smallest multi-car shipment in order to match the current efficiency adjustment at six cars.[39] See Appendix D (depicting intermodal results) and workpaper "EP431S4_StationClerical.xlsx" (quantifying the impacts of the CWB methodology on Station Clerical and showing how the CWB variables are calculated and how it differs from the current methodology).

As with SEM costs, this revised proposal, which makes changes to Phase III rather than Phase II, obviates the need for adjustments to the Board's reporting requirements of the railroads. Thus, the NPR's proposed changes to the Annual Report of Cars Loaded and Cars Terminated (Form STB-54) and the Quarterly Report of Freight Commodity Statistics (Form QCS) are no longer necessary under the revised proposal.

[39] The Board also declines to make the further refinement to URCS proposed by AAR's witnesses with regard to station clerical costs for intermodal shipments. AAR's witnesses argued that URCS may currently over-allocate station clerical costs, and asked the Board to confirm that URCS allocations are aligned with the reporting of expenses in Schedules 410 and 417 of the R-1 reports. (AAR Reply, V.S. Baranowski & Fisher 13-14.) The costs associated with station clerical are found in R-1 Schedule 410 (lines 518 to 526). The costs associated with loading and unloading of TCUs onto or off of intermodal cars are found in R-1 Subschedule 417, which is a refinement of the costs found in R-1 Schedule 410 (lines 507-517). Although the URCS worktable cited by the witnesses (Worktable D7 Part 7A) does refer to Subschedule 417, that particular worktable does not involve station clerical costs at issue here. URCS develops station clerical expenses in a separate worktable (Worktable D5 Part 1). As such, the expenses from these two schedules are properly aligned with the separate calculations of URCS station clerical expenses and intermodal loading/unloading expenses.

4. Car-Mile Costs

In order to calculate car-mile costs, URCS uses what is referred to as the Empty/Loaded Ratio (E/L Ratio) to adjust the number of miles in a particular movement. The E/L Ratio is used when costing all movements because, although there are costs associated with both empty miles and loaded miles, URCS only requires a user to input loaded miles to cost a movement. Thus, to account for the costs of a carrier's total miles, URCS multiplies loaded miles by the E/L Ratio. The E/L Ratio, which can be described as total miles divided by loaded miles, is a figure computed by URCS based on data supplied by the Class I carriers.

Currently, in Phase III, URCS uses the E/L Ratio for single-car and multi-car movements based on actual data supplied by the railroads. For unit train movements, however, URCS applies an E/L Ratio of 2.0 to reflect the assumption that, for unit train movements, a loaded car will return to its origination location, such that empty miles are equal to loaded miles.[40] Thus, even if a rail carrier's actual E/L Ratio is less than 2.0 (i.e., there are fewer empty miles than loaded miles and thus more efficiencies), URCS currently disregards that more efficient E/L Ratio as to unit train movements and applies the less efficient value of 2.0.[41]

In the NPR, the Board stated that the actual E/L Ratio computed from data supplied by the carriers is the best reflection of a railroad's actual operations and that it should not be replaced by an assumed E/L Ratio of 2.0 in the case of a unit train movement. It therefore proposed to adjust URCS so that the actual E/L Ratio would apply to all types of movements, such that URCS would no longer treat all unit train movements as having equal empty and loaded car-miles.

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[40] As explained earlier, supra note 5 and accompanying text, URCS currently assumes movements of 50 cars or more are unit train movements due to its handling of the E/L Ratio. URCS also assumes such movements to be unit train movements because it uses certain unit train statistics reported in the R-1 reports when costing those movements (e.g., train miles, locomotive unit-miles, car-miles, and gross ton-miles). The R-1 reports ask railroads to report unit train, way train, and through train data, and defines unit train service as "a specialized scheduled shuttle type service in equipment (railroad- or privately-owned) dedicated to such service, moving between origin and destination." (R-1 Schedule 755 Instructions at 92.)

[41] A unit train movement's E/L Ratio might be greater or less than 2.0 for a variety of reasons, including whether the shipment at issue is moved in railroad-owned cars or privately-owned cars. In the case of railroad-owned cars, where the rail carrier typically controls the movement of its cars across its network, a shipment may travel from point A (loading origin) to point B (unloading destination) to point C (next loading origin). If point C is closer to point B than point A, then the E/L Ratio would be less than 2.0. If, however, point C is farther from point B than point A, then the E/L Ratio would be greater than 2.0. This is in contrast, for example, to the situation involving a unit train of privately-owned cars that continually cycles between point A and point B, such that the movement's E/L Ratio would be equal to 2.0.

While some commenters supported or did not object to the proposal,[42] others disagreed. Several commenters argue that the Board should continue to use the 2.0 figure for dedicated shuttle trains.[43] ARC recommends that the Board consider requiring railroads to identify dedicated shuttle trains in the Waybill Sample so that the Board could properly apply the 2.0 figure to those movements.[44] WCTL argues that the NPR's proposal was flawed because reported car type data does not distinguish between the type of service that a car is used to provide, and that car data supplied by carriers can include data for single-car, multi-car, and unit train shipments, without distinguishing between the type of service. As such, WCTL recommends that the Board create a new shipment entry in Phase III for dedicated shuttle trains and retain the use of the 2.0 figure for those moves.[45] ACC argued that the Board's proposal cannot be adequately assessed until it determines the ratio of the equipment type used in unit train service versus non-unit train service.[46]

The Board continues to believe that URCS should apply the actual E/L Ratio as computed from the carriers' data to all shipment sizes, including unit train movements. URCS's current use of the 2.0 figure for unit train movements is meant to reflect efficiencies of that service. However, as noted, even if the reported, actual E/L Ratio for a car type used in unit train service is less than 2.0 (such that efficient service is reflected), URCS will nonetheless apply the less efficient value of 2.0, which *increases* the cost of that supposedly more efficient movement. The E/L Ratios as reported by the Class I railroads in 2012 and 2013 for car types that are often used in unit train service were reviewed.[47] That review indicates that, of the E/L Ratios reported in 2013 for car types primarily used in unit train service, the reported percentage of unit train car-miles with E/L Ratios less than 2.0 was 65% and 48% for the eastern and western Class I carriers, respectively. Of the E/L Ratios reported in 2012, the percentage of unit train car-miles with E/L Ratios less than 2.0 was 66% and 10% for the eastern and western Class I carriers, respectively.[48] See Appendix E; workpapers "EL Ratios_2012.xlsx" & "EL Ratios_2013.xlsx" (showing the E/L Ratios for Class I Railroads and the percentage of E/L Ratios less than 2.0 weighted by car-miles). This demonstrates that such shipments in those equipment types are

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[42] See, e.g., AAR Comment 7 n.12 (does not object to Board's proposal); UP Comment 12-13 (supports use of E/L Ratio). See generally AECC Comment; BNSF Comment.

[43] ACC Reply, V.S. Mulholland 13-14; ARC Comment, V.S. Fauth 12-14; WCTL Comment 2, 11-13.

[44] ARC Comment, V.S. Fauth 12-14.

[45] WCTL Comment 2, 11-13.

[46] ACC Comment 9.

[47] Privately-owned and railroad-owned plain gondola, general service open-top hopper, and special service open-top hopper were reviewed.

[48] The percentage of E/L Ratios less than 2.0 weighted by unit train car-miles is calculated by dividing unit train car-miles for E/L Ratios less than 2.0 by the total unit train car-miles for all reported E/L Ratios.

indeed having their costs *increased* by the current efficiency adjustment. Moreover, that negative efficiency adjustment is then being added back onto single- and multi-car movements, which *decreases* costs for those smaller movements. The current application of 2.0 instead of the system-average E/L Ratio thus undermines the purpose of the efficiency adjustment.

Additionally, making changes to the Waybill Sample that would distinguish dedicated unit train service is beyond the scope of this rulemaking (which is principally focused on eliminating the make-whole adjustment in URCS and improving related allocations), and is not necessary in order to apply the E/L Ratio to unit train service for purposes of this proceeding. The E/L Ratio is reported by equipment type, and certain types of equipment are used predominantly in unit train service, such that the E/L Ratio for those equipment types will reflect unit train service. For example, the 2012 and 2013 Waybill Samples were analyzed using the proposed definition of unit train (i.e., 75 cars or more, as discussed infra) to determine the percentage of car-miles by car type moving in single-car, multi-car, and unit train service. That analysis showed that certain car types are often used in the same type of service, particularly for those car types often used in unit train service (plain gondolas, general service open-top hoppers, and special service open-top hoppers). See Appendices C & E (showing shipment sizes by car type for railroad- and privately-owned equipment in 2013). Therefore, the Board continues to believe that URCS should apply the E/L Ratio as computed from the carriers' data to all types of service.

5. Other Related Changes

In addition to the above changes, this Supplemental NPR also proposes the following changes related to the make-whole adjustment and/or step functions: I&I switching mileage, definition of unit train, LUMs, and train miles.

I&I Switching Mileage. Currently, URCS assumes that single-car and multi-car shipments of carload traffic (i.e., non-intermodal traffic) receive I&I switching every 200 miles. Some years ago, the Board noted that this figure appeared to be outdated but that, without conducting a special study, it was unable to propose another figure to use in its place. Review of Gen. Purpose Costing Sys., 2 S.T.B. 659, 665 n.18 (1997).

In the NPR, the Board proposed to update this figure to reflect the fact that, since the mergers of the 1990s, the average length of haul on individual railroads has increased. The Board noted that, based on a comparison of the average length of haul for the Class I railroads in 1990 (pre-mergers) and 2011 (post-mergers), it observed a 60% increase in the overall length of haul. The Board therefore proposed to increase the distance between I&I switches for carload traffic by 60%, from 200 miles to 320 miles. The Board also encouraged interested parties to submit data and comments on whether a 60% increase is appropriate, or whether the Board should consider a larger increase.

The few comments on this proposal generally argued that the Board should change the I&I switching mileage for carload traffic based on empirical data from the railroads.[49] In particular, ACC argued that the Board's proposal was based on a flawed assumption. ACC points out that the average length of haul is based on both unit train and non-unit train traffic, of which only the latter receives I&I switching. ACC argues that the Board assumed without basis that the ratio of unit train to non-unit train traffic has remained constant since 1990 and that the number of I&I switches on non-unit train traffic has remained constant since 1990.

UP supports the Board's attempt to update the carload I&I switching mileage, but also argues that an increase in length of haul does not necessarily equate to an increase in the carload I&I switching mileage. UP argues that the Board should base any changes to this figure on actual railroad data. To that end, UP states that it studied single-car and multi-car shipments (excluding intermodal) on its system over two years and determined that, on average, I&I switching for those shipments happens every 250 miles.[50] UP asks the Board to adopt this 250-mile figure rather than the 320-mile figure proposed in the NPR.[51] No party specifically commented on UP's study or proposed figure.

We disagree with the implication that there is no link between an increase in length of haul and an increase in I&I switching mileage. More than 70 years ago, when the ICC published the 200-mile value currently applied to carload I&I switching, the agency recognized that a longer distance in I&I switching could be explained by a greater length of haul. See S. Doc. No. 78-63, at 119 (1943). Since then, the railroad industry has developed significant technological improvements, has consolidated through mergers, and has optimized and reconfigured networks and yards. These, as well as other changes, allow for longer distances between I&I switches. Taken together, there is a reasonable basis to conclude that an increase in length of haul correlates to an increase in the distance between I&I switches.

In response to the comments, the Board has updated its analysis of the length of haul change between 1990 and 2011 to exclude unit train shipments, which currently do not receive I&I switching in URCS, and intermodal shipments, for which I&I occurs at a much greater distance (as explained below). Based on this revised analysis, the Board has calculated a revised average length of haul between I&I switches for carload traffic of 268 miles rather than 320 miles. See workpaper "EP431S4_Length of Haul_I&I Switching.xlsx" (calculating length of haul between 1990 and 2011). This number is close to the result of UP's study and is greater than the 200 mile value for I&I switching currently used by URCS, which may be outdated. See 2 S.T.B. at 665 n.18. The fact that the results from UP's study (i.e., 250 miles) and the Board's

[49] ACC Comment 9-10; ARC Comment, V.S. Fauth 14; ARC Reply, V.S. Fauth 8-9.

[50] Based on tables attached to its comment, it appears UP calculated this figure by dividing the average haul miles by the average number of switches for commodity categories at the two-digit Standard Transportation Commodity Code level in 2011 and 2012. (See UP Comment, App. C.)

[51] UP Comment 13; UP Reply 4.

revised methodology (i.e., 268 miles) produced similar results suggests that these numbers provide reasonable estimates of the appropriate I&I switching mileage.[52] We encourage parties to submit additional data and comment on this topic, and specifically request comment on whether the 250-mile figure proposed by UP or the Board's 268-mile figure appropriately reflects I&I switching in railroad operations.

Next, AAR and BNSF state that there is a technical error in URCS Phase II related to I&I switching. Currently, URCS assumes an I&I switch every 4,162 miles in Phase III for intermodal shipments. However, in calculating the system-wide I&I switches for allocation in Phase II, URCS uses the 200-mile figure for intermodal that should be used only for carload shipments. AAR and BNSF ask the Board to correct this inconsistency.[53] ACC, however, objects to this request, arguing that this change is outside the scope of the present proceeding.[54]

AAR and BNSF have identified what appears to be an administrative error in fully implementing a 1997 Board decision regarding URCS. The Board believes it is appropriate to correct that error in this proceeding. As pointed out by AAR and BNSF, although URCS should apply a distance between I&I switches of 4,163 miles in Phase II, as adopted by the Board in 1997, it does not.[55] Instead, it applies the 200-mile I&I switching distance (which is used for single-car and multi-car shipments) for intermodal cars. In addition, for some time now, URCS Phase III (both the Board's waybill costing program and the interactive Phase III movement costing program) has applied a 4,162-mile I&I switching distance for intermodal movements, which is off by one mile.

In order to correct the treatment of I&I switching, an issue addressed earlier in the Supplemental NPR and therefore within the scope of this proceeding, the Supplemental NPR proposes to apply the 4,163 switching factor previously adopted by the Board for intermodal shipments in Phase II as well as Phase III. As discussed later in this decision, the Board will be issuing a revised Phase III movement costing program that conforms that program to the Board's 1997 decisions in Review of the General Purpose Costing System, 2 S.T.B. 659 (1997) and 2 S.T.B. 754 (1997). We will also conform the figure applied in the Board's waybill costing program to what was adopted by the Board in 1997.

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[52] Although UP's study provides empirical evidence on this issue, questions remain regarding the study. For example, UP did not explain its specific methodology and underlying assumptions, nor did it explain why its study excluded certain two-digit STCC groups. Therefore, the Board is requesting comments on UP's study.

[53] AAR Comment 20-21; BNSF Comment 11 n.8.

[54] ACC Reply 12; ACC Reply, V.S. Mulholland 18.

[55] In 1997, the Board determined that intermodal shipments receive less switching than general single-car traffic, for which the distance between I&I switches was assumed to be every 200 miles. Based on data submitted by AAR, the Board adopted a 4,163-mile I&I switching distance for intermodal movements. Review of Gen. Purpose Costing Sys., 2 S.T.B. 754, 755 (1997).

Definition of Unit Train.[56] In the NPR, the Board proposed to increase the number of cars in a unit train movement from the current 50 or more cars to 80 or more cars. In this Supplemental NPR, the Board is proposing to reduce the number of cars in unit train movements to 75 or more.

In justifying the originally proposed increase to 80 or more cars, the Board noted that train lengths have increased over the years due to a variety of factors, including higher horsepower locomotives and advances in distributive power. The Board then reviewed the 2010 Waybill Sample and determined that, for shipment sizes between 50 and 90, there was a higher occurrence of 80-car movements than any other shipment size. The Board thus found that the empirical evidence supported the 80-car figure, but also sought comment on whether the Board should consider an alternate figure in defining unit train.

Although many parties either support or do not object to the Board's proposal,[57] ACC, ARC, and AECC either oppose or raise concerns regarding the proposed change. First, ACC asserts that the Board should perform a study to more appropriately determine the point at which shipments are transported as unit train shipments and the variation of this definition across commodities and regions.[58] However, as stated earlier, the Board does not believe it is necessary to commit its limited resources to conduct the type of study that ACC appears to advocate, particularly when there are other means of accounting for these impacts.

Second, ARC's witness, Fauth, argues that changing the definition of unit train to 80 cars, as was proposed in the NPR, could impact a significant amount of traffic and would likely result in increases in variable costs for shipments ranging from 50 to 79 cars and perhaps would "deregulate" this traffic from the Board's rate reasonableness jurisdiction.[59] It is worth noting, however, that setting the definition of unit train too low would incorrectly assign greater efficiencies to shipments in the 50 to 79 car range which would understate the costs of those shipments and inappropriately distribute those efficiencies onto single-car shipments. Both of these concerns are addressed by the Supplemental NPR's proposed definition of unit train. Specifically, the Supplemental NPR proposes to change the definition to better reflect current railroad operations so that efficiencies in URCS better reflect the principle of cost causation as articulated in the RAPB,[60] regardless of which traffic group may or may not be affected.[61] The

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[56] Although the NPR used the term "trainload," because URCS treats these movements as unit train, this Supplemental NPR uses the term "unit train" to reflect how those shipments are costed.

[57] AAR Comment 7 n.12; Montana Grain Comment 1; UP Comment 14; WCTL Comment 13. See generally BNSF Comment (no specific comment).

[58] ACC Comment 10; ACC Reply, V.S. Mulholland 15.

[59] ARC Comment, V.S. Fauth 15-17.

[60] In other words, costs would be assigned based on the operations of a service. For further discussion of cost causation, see supra note 21 and the accompanying text.

Board, therefore, believes that the proposed unit train definition is a neutral solution that would more appropriately distribute efficiencies than current URCS does.

Finally, AECC argues that shipments of fewer than 80 cars are not combined with other shipments, such that the 80-car standard does not reflect current operations.[62] AECC cites to the Board's data showing that, aside from UP, none of the other major Class I railroads have an average through train length of over 58.8 cars. In its comments, AECC analyzes the through train data for three Class I carriers, which shows an average through train length of 54.4 cars.

AECC's analysis, however, accounts only for R-1 data for through trains, ignoring unit train data. The R-1 Schedule 755 Instructions define "through train" as "those trains operated between two or more major concentration or distribution point," and "unit trains" as "a specialized scheduled shuttle type service in equipment (railroad- or privately-owned) dedicated to such service, moving between origin and destination." The instructions also state that "unit trains" data is not to be included in "through" or "way" train statistics.[63] As a result, AECC's analysis of through train data (showing an average through train length of 54.4 cars) is not an appropriate basis for determining the definition of unit train service.[64]

The Board continues to believe that the existing definition of a unit train at 50 or more cars should be increased.[65] However, in light of parties' comments and further evaluation of the available data, we propose to define unit train as consisting of 75 or more cars rather than 80 or more cars. The Board believes that defining the minimum size for unit train shipments as

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(. . . continued)

[61] Fauth also notes that NSR initiated a 75-car shuttle train program, which would not be considered unit train under the NPR's proposal. ARC Comment, V.S. Fauth 16. ARC and Fauth do not provide any further detail on this program; however, as discussed in this section, the Board's revised proposal would treat these 75-car shipments as unit train traffic.

[62] AECC Comment 8-10.

[63] The R-1 Schedule 755 Instructions define "way train" as "trains operated primarily to gather and distribute cars in road service and move them between way stations or way points."

[64] Using the methodology applied and the data source cited by AECC, but instead using unit train data, an average unit train length is calculated to be 104.7 cars, which also suggests that the current unit train definition of 50 cars is too low.

[65] The NPR explained that, despite the fact that the E/L Ratio would no longer be adjusted exclusively for unit train movements, the definition of unit train would continue to play a role because URCS assumes that unit train movements receive no I&I switching. Slip op. at 8. Additionally, the unit train definition determines which movements use the unit train statistics reported by the railroads and, under this revised proposal, is used in the CWB Adjustment to cause SEMs to be reduced by the same amount as is currently done by the make-whole adjustment.

starting at 75 cars is appropriate for two reasons. First, the Board looks to the data reported in the R-1 reports for through trains and unit trains. In the R-1 reports, unit train data is aggregated, which prohibits the minimum size of unit train from being determined. As a result, the Board is using the weighted average train size of through train and unit train data to determine the break point between these two train lengths and, accordingly, determine the lower-end size of unit train service.[66] As evidenced in workpaper "EP431S4_Unit Train Definition.xlsx," the weighted average of through train and unit train R-1 data for the Class I carriers based on 2012 data is 77.5 cars and the weighted average based on 2013 data is 73.9 cars. Both figures support the Board's proposed definition of 75 cars.

Second, the Board found that, using the NPR's initial methodology of reviewing the Waybill Sample, there is a high occurrence of 75-car movements compared to other shipment sizes between 50 cars and 90 cars according to 2012 and 2013 data.[67] See Appendix F and workpapers "Frequency of Shipment Sizes_2012.xlsx" & "Frequency of Shipment Sizes_2013.xlsx." Thus, based on the comments and review of available data, the Board finds that it is more appropriate to define unit train service as 75 cars or more and revises its proposal accordingly.

Locomotive Unit-Miles (LUMs). The NPR expressed concern that the current allocation for LUMs produced a step function between multi-car and unit train shipments, and therefore proposed two modifications—one for unit train shipments and one for non-unit train shipments. In this Supplemental NPR, the Board proposes a different modification that would cap the LUMs associated with multi-car shipments to be less than or equal to the LUMs allocated to the definition of a unit train shipment.

Currently, URCS calculates total LUMs by multiplying the distance of a particular movement by the average number of locomotives for that type of train. URCS then allocates these LUMs to the movement by multiplying total LUMs by a ratio of gross tons of the shipment to average gross tons of the train, such that the allocation of LUMs is based on the weight of the shipment.[68]

Although the calculation of total LUMs is the same for all shipment size categories, two values in the calculation are derived from the R-1 reports and are specific to train type (i.e., way train, through train, or unit train)—the average number of locomotives and the average gross tons per train. For single-car or multi-car shipments, URCS derives these two values from a

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[66] Through trains are assumed to be shorter than unit trains. Therefore, the weighted average train size of through and unit train data should determine the lower-end size of unit train service.

[67] The Waybill Sample reports the number of carloads in the shipment for all rail traffic.

[68] The average gross tons for different types of trains are calculated by dividing gross ton-miles by train miles, both of which are reported by Class I carriers in Schedule 755 of the R-1 reports.

combination of the reported way and through train data. For unit train shipments, URCS derives these two values from the reported unit train data. However, URCS applies the same unit cost per LUM (which is based on an average value of way, through, and unit trains also derived from the R-1 reports) to both unit train and non-unit train shipments. The result is that URCS shifts from one cost curve to another when moving from a multi-car shipment to a unit train shipment. Thus, as explained in the NPR, a step function occurs between multi-car and unit train shipments, such that the LUM costs assigned to large multi-car shipments are higher than the LUM costs assigned to unit train shipments.[69] See Appendix G (further explaining the cause of the negative step function produced by the current allocation for LUMs).

To eliminate this step function, as noted, the NPR proposed two modifications to how URCS allocates LUM costs. With regard to unit train shipments, the NPR proposed to allocate the entire train's LUM costs to the trainload shipment, regardless of the gross tons of the unit train shipment relative to the average gross tons of a particular train. With regard to non-unit train shipments, the NPR proposed to base the allocation of LUM costs for single- and multi-car shipments on the number of cars in the shipment relative to the minimum number of cars of a unit train shipment.

Most commenters objected to the Board's LUMs proposals. With regard to unit train shipments, commenters argued that ignoring the relationship between a shipment's gross tons and the average gross tons of the train was problematic because it means that the weight of the train would not be factored into URCS. In particular, URCS currently assigns more LUM costs to heavier trains because heavier trains require more locomotives and consume more fuel. Commenters argued that ignoring differences in train weight would produce less appropriate costing results, and that the step function observed by the Board is not a function of the trailing weight adjustment at all. Commenters also noted that the Board's proposal was not based on empirical studies that disprove the longstanding assumption that heavier trains incur higher locomotive costs.[70]

With regard to the modification for non-unit train movements, many commenters argued that the Board's proposal would produce less appropriate results because a car-based method is less appropriate than a shipment-weight based method. Commenters also argued that the Board's proposal had no empirical basis and that the Board's proposed adjustment did not actually solve the concern stated by the Board in the NPR.[71]

Having reviewed the comments, the Board concludes that the NPR's proposed change to LUM costs did not adequately account for shipments with heavier than system-average weights

[69] The step function does not occur on intermodal shipments, as URCS applies only through train data to intermodal shipments. Therefore, all intermodal shipments are treated alike, regardless of the number of TCUs in the shipment.

[70] AAR Comment 17-19; BNSF Comment 13-15; UP Comment 14-15.

[71] AAR Comment 17-19; BNSF Comment 13-15; UP Comment 15-16.

and, therefore, we are withdrawing the NPR's proposals related to LUM costs. However, considering the step function created by the current allocation, the Board finds that it is still appropriate to revise how URCS allocates LUMs.

To eliminate the step function created by the current LUM allocation, the Board proposes in Phase III to cap the LUMs allocated to multi-car shipments to be less than or equal to those allocated to a 75-car shipment (the minimum number of cars under our proposed definition of unit train).[72] See Appendix G (illustrating the proposal to cap LUMs allocated to multi-car shipments). Doing this allows for a continuous slope with no break points between the single-/multi-car slope and the unit train slope. This proposal otherwise leaves the allocation of LUM costs the same: unlike the NPR's proposal, the LUMs allocation would generally continue to be based on the gross tons of the shipment relative to the average gross tons of the train for both non-unit and unit train shipments. This is responsive to commenters' concerns that the LUM allocations should continue to account for shipment weight. We believe capping the LUMs is an appropriate method to eliminate the negative step function produced by the current cost allocation for LUMs. It ensures that LUM costs for large multi-car shipments are not higher than for unit train shipments, requires minimal changes to current URCS, and would impact a small percentage of traffic.[73]

Train Miles. Train mile costs have two components: crew and other than crew. Although the NPR did not include a proposal on train miles, the Board is addressing train mile allocation in this Supplemental NPR because it also has the possibility of producing a negative or positive step function.

Currently, for single-car and multi-car shipments, URCS allocates train miles in a similar manner to LUMs by multiplying the total train miles by the ratio of the gross tons of a shipment to the average gross tons of the train. That causes train miles to increase as shipment weight

[72] Unlike with SEMs and station clerical, where the Supplemental NPR proposes to apply the CWB Adjustment in Phase III to redistribute efficiencies derived from economies of scale, with respect to LUMs there is no redistribution of efficiencies derived from economies of scale. In Phase II, non-unit train LUMs reflect efficiencies of "way" and "through" trains, and unit-train LUMs reflect the efficiencies inherent in unit train service, but the efficiencies of unit trains are not redistributed or added onto "way" and "through" trains in Phase III. As a result, the Board finds that the CWB Adjustment proposed in this Supplemental NPR is not applicable to LUMs. Instead, the Supplemental NPR seeks only to smooth out the step function for LUMs.

[73] This proposal for LUMs would affect only a small portion of total traffic. Although the exact shipment sizes that would be affected vary depending on, for example, the type of equipment and carrier, the impact would fall on carload shipments generally at the higher end of the multi-car range. Using 2013 Waybill Sample data, the range of shipments that would be affected is 47 to 74. Using this example, the total traffic impacted by the proposal would be less than 0.08%. See workpapers "LUMs Allocation_ClassIs.xlsx" and "LUMs Allocation_Impact.xlsx."

increases. Unit train shipments, however, receive all train miles, regardless of the weight of the shipment relative to the average gross tons of unit trains.

The train mile allocation currently in URCS can produce a negative or positive step function between multi-car and unit train shipments (under the current definition of unit train), such that the train miles assigned to a 49-car shipment are lower or higher than the costs assigned to a 50-car shipment. Whether the step is negative or positive (or whether it exists at all) depends on the characteristics of the particular shipment.[74]

To eliminate all instances where a negative step function occurs, the Supplemental NPR proposes in Phase III to cap the train miles allocated to multi-car shipments to be less than or equal to those allocated to a 75-car shipment (the minimum number of cars under our proposed definition of unit train).[75] See Appendix H (providing charts illustrating the proposal). A positive step function is more likely to occur when the gross tons per car of the unit train shipment are very low. As such, a positive step function should rarely happen. Therefore, at this time, it is not necessary to propose a change to train miles that would eliminate the potential for positive step functions.

Other than capping the train miles allocated to multi-car shipments, this proposal would leave the allocation of train miles unchanged: unit train shipments would continue to be allocated all the train miles, and the allocation for single-car and multi-car shipments would generally continue to be based on the gross tons of the shipment relative to the average gross tons of the train. We believe that capping the train miles as described above is an appropriate method to eliminate in most instances the potential step function for train miles. It ensures that train mile costs for large multi-car shipments are not higher than unit train shipments and requires minimal changes to current URCS.

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[74] This step function does not occur on intermodal shipments in URCS's waybill costing program, as all intermodal shipments are treated alike, regardless of the number of TCUs in the shipment.

[75] The CWB Adjustment also is not applicable to the train miles allocation for the same reasons it is not applicable to the LUMs allocation. See supra note 72.

6. Requested Modifications

Some parties made additional requests for modifications to URCS. For example, AAR and BNSF asked the Board to eliminate interterminal and intraterminal switching, but retracted that request on reply and instead requested that the Board correct an underassignment of these costs.[76] AAR and UP asked the Board to address regulatory reporting issues as they relate to positive train control and toxic-by-inhalation hazardous materials.[77] AECC proposed a number of changes relating to train and engine crew costs, private cars, fuel costs, tare weights, road property investment and depreciation, and locomotives, among others.[78] These requested modifications would greatly expand the scope of this proceeding, which the Board declines to do. The primary goal of this proceeding is to address concerns related to the make-whole adjustment and concerns that URCS created step functions, which could create the opportunity for parties to use URCS to manipulate regulatory outcomes. Because the parties have either not shown that these requested modifications are related to the make-whole adjustment or step functions, or that the requested modifications are necessary to appropriately calculate costs in URCS, the Board will not address such additional modifications in this proceeding.

7. Phase III Movement Costing Program

URCS calculates the variable costs of a movement in Phase III. There are two versions of Phase III: the waybill costing program, which calculates the variable costs of movements in the Waybill Sample, and the interactive Phase III movement costing program,[79] which calculates variable costs based on user-supplied information. The waybill costing program calculates the make-whole factors, whereas the interactive Phase III movement costing program applies the make-whole factors and uses them to estimate movement specific costs. The Board is aware of certain technical inconsistencies between the waybill costing program and the movement costing program (e.g., efficiency adjustments for intermodal shipments), and between both costing programs and the Board's 1997 decisions in Review of General Purpose Costing System, 2 S.T.B. 659 (1997) and 2 S.T.B. 754 (1997) (e.g., the distance between I&I switches for intermodal movements). Because this proceeding addresses issues relating to intermodal movements, and these technical issues pertain to intermodal movements, we note here that the Board will be releasing a revised Phase III movement costing program to reconcile these inconsistencies. Because the technical corrections that will be made would merely implement procedures previously adopted after notice and opportunity for comment, the revised Phase III movement costing program will be effective upon release.

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[76] AAR Comment 20; AAR Reply 8-9; BNSF Comment 10-11.

[77] AAR Comment 21; UP Reply 6.

[78] AECC Comment 11-22.

[79] The current version of the Phase III movement costing program (titled "URCS Phase III Railroad Cost Program") is available at http://www.stb.dot.gov/stb/industry/urcs.html. See also supra note 2.

The revised Phase III movement costing program will not include the proposals in this Supplemental NPR. The Board will release a further revised Phase III movement costing program to implement any modifications adopted by final rule in this proceeding.

8. Implementation

Several commenters noted that the NPR did not address how its proposal, if adopted, would be implemented.[80] The proposal here would impact calculations that use multiple years of URCS data. For example, the Board's Office of Economics annually calculates the Class I carriers' revenue shortfall allocation methodology (RSAM) figure and revenue-to-variable cost greater than 180% ($R/VC_{>180}$) ratios, as well as their four-year averages. See, e.g., Simplified Standards for Rail Rate Cases—2013 RSAM & $R/VC_{>180}$ Calculations, EP 689 (Sub-No. 6) (STB served Sept. 3, 2015). For these types of annual calculations, the Board proposes to apply the proposed changes prospectively. This means that, for calculations that require multiple years of data—such as RSAM or $R/VC_{>180}$—there would be a brief period where the averages include data calculated under URCS' current methodology and under the proposed methodology described herein. The Board does not believe that the changes proposed here need to be applied retroactively to these types of calculations. Although the Board believes these proposals will improve our current costing procedures, the proposed changes are simply refinements to URCS, which has been in effect for over 20 years and has been relied on by industry participants and the public. Therefore, the prior URCS calculations using the current costing procedures will remain in effect. As the Board strives to improve various aspects of URCS, we see no reason to revisit otherwise final calculations that have been and are relied upon by the public. See, e.g., AEP Tex. N. Co. v. BNSF Ry., NOR 41191 (Sub-No. 1), slip op. at 7-10 (STB served May 15, 2009).

Conclusion

We believe that the revised proposals described above would remedy most concerns about step functions currently in URCS, generally produce costs that better reflect the current state of rail industry operations, and are responsive to parties' criticisms of the NPR. We therefore invite public comment on each of the proposals described herein.

Regulatory Flexibility Act

The Regulatory Flexibility Act of 1980 (RFA), 5 U.S.C. §§ 601-612, generally requires a description and analysis of new rules that would have a significant economic impact on a substantial number of small entities. In drafting a rule, an agency is required to: (1) assess the effect that its regulation will have on small entities; (2) analyze effective alternatives that may minimize a regulation's impact; and (3) make the analysis available for public comment. 5 U.S.C. §§ 601-604. In its notice of proposed rulemaking, the agency must either include an

[80] AAR Comment 19-20; ACC Comment 4, V.S. Mulholland 6-7; BNSF Comment 15; UP Comment 18.

initial regulatory flexibility analysis, § 603(a), or certify that the proposed rule would not have a "significant impact on a substantial number of small entities," § 605(b).

Because the goal of the RFA is to reduce the cost to small entities of complying with federal regulations, the RFA requires an agency to perform a regulatory flexibility analysis of small entity impacts only when a rule directly regulates those entities. In other words, the impact must be a direct impact on small entities "whose conduct is circumscribed or mandated" by the proposed rule. White Eagle Coop. Ass'n v. Conner, 553 F.3d 467, 478, 480 (7th Cir. 2009). An agency has no obligation to conduct a small entity impact analysis of effects on entities that it does not regulate. United Dist. Cos. v. FERC, 88 F.3d 1105, 1170 (D.C. Cir. 1996).

This proposal will not have a significant economic impact upon a substantial number of small entities, within the meaning of the RFA. The purpose of our changes to URCS is to improve the Board's general purpose costing system, which is used to develop regulatory cost estimates for the Class I rail carriers. These changes will result in more appropriate estimates of Class I carrier variable costs. Therefore, the Board certifies under 49 U.S.C. § 605(b) that this proposed rule, if promulgated, will not have a significant economic impact on a substantial number of small entities within the meaning of the RFA.

Paperwork Reduction Act

In the NPR, the Board proposed changes to two of its reporting requirements, and therefore sought comment on two collections of information pursuant to the Paperwork Reduction Act, 44 U.S.C. §§ 3501-3549. Those modified collections were submitted to the Office of Management and Budget (OMB) for review. Because we are no longer proposing changes to the Board's reporting requirements, we are withdrawing the Board's requests to OMB for approval of those modifications.

It is ordered:

1. The Board proposes to adjust URCS as detailed in this decision. Notice of this decision will be published in the Federal Register.

2. To assist commenters in reviewing this revised proposal, the Board will make its workpapers available to commenters subject to the customary Confidentiality Agreement.

3. Comments are due by October 11, 2016; replies are due by November 7, 2016.

4. A copy of this decision will be served upon the Chief Counsel for Advocacy, Office of Advocacy, U.S. Small Business Administration.

5. This decision is effective on its service date.

By the Board, Chairman Elliott, Vice Chairman Miller, and Commissioner Begeman.

Appendix A
Current Make-Whole Efficiency Factor Reductions

Line	Line Description	Single-Car	Multi-Car	Unit Train	Intermodal	Notes
L105	E/L Ratio, this car	n/a	n/a	2.0	n/a	See Note 1.
L257	UC per clot-CLR-OPR	0%	Function	Function	0% or Function	See Note 2.
L301	SEM per industry switch event	0%	50%	75%	75%	
L302	SEM per interchange switch event	0%	0%	50%	50%	
L303	SEM per I&I switch event	0%	0%	100%	0% or 100%	See Notes 3 and 4.
L325	SEM per intraterminal switch	0%	50%	87.5%	87.5%	
L326	SEM per interterminal switch	0%	50%	87.5%	87.5%	
L419	CM(Y)/industry switch (L-E)	0%	50%	50%	50%	
L420	CM(Y)/interchange switch (L-E)	0%	0%	50%	50%	
L421	CM(Y)/I&I switch (L-E)	0%	0%	100%	0% or 100%	See Note 4.
L443	CD(Y)/industry switch (L or E)	0%	50%	50%	50%	
L444	CD(Y)/interchange switch (L or E)	0%	0%	50%	50%	
L445	CD(Y)/I&I switch (L or E)	0%	0%	100%	0% or 100%	See Note 4
L449	CD(Y)-per loading & unloading for industry switch	0%	50%	50%	50%	

NOTES:

- Note 1: URCS does not adjust the E/L Ratio for single-car, multi-car, or intermodal shipments.
- Note 2: The function for multi-car, unit train, and intermodal is: (75% + 25%/Number of Cars). For intermodal, the efficiency adjustment factor is set to 0% if the number of intermodal flatcars is less than six. Otherwise, the function is used.
- Note 3: An implied efficiency adjustment factor for intermodal is implemented by setting the distance between I&I switches at 4,162 miles. See supra pp. 24-25 (explaining that we will conform the figure currently applied by URCS—4,162—to the figure adopted by the Board in 1997—4,163).
- Note 4: The efficiency adjustment factor for intermodal is set to 0% if the number of intermodal flatcars is less than six.

APPENDIX B
Switch Engine Minutes

The table below demonstrates how the Carload Weighted Block (CWB) Adjustment reflects economies of scale. For purposes of this example, we assume that the percentage by which switching varies is 10% by carload and 90% by block. In applying the CWB Adjustment, actual values for the percentage by which switching varies by carload and by block would be calculated.

Economies of Scale in the Carload Weighted Block Adjustment

(1)	(2)	(3)=(1)*10% + (2)*90%	(4)=(3)/(1)
Carloads	**Blocks**	**Total CWBs**	**CWBs per Carload**
1	1	1.0000	1.0000
2	1	1.1000	0.5500
3	1	1.2000	0.4000
4	1	1.3000	0.3250
5	1	1.4000	0.2800
6	1	1.5000	0.2500
7	1	1.6000	0.2286
8	1	1.7000	0.2125
9	1	1.8000	0.2000
10	1	1.9000	0.1900

The CWBs per carload reflects economies of scale as each carload is added to the block and produces an asymptotic curve instead of a step function.

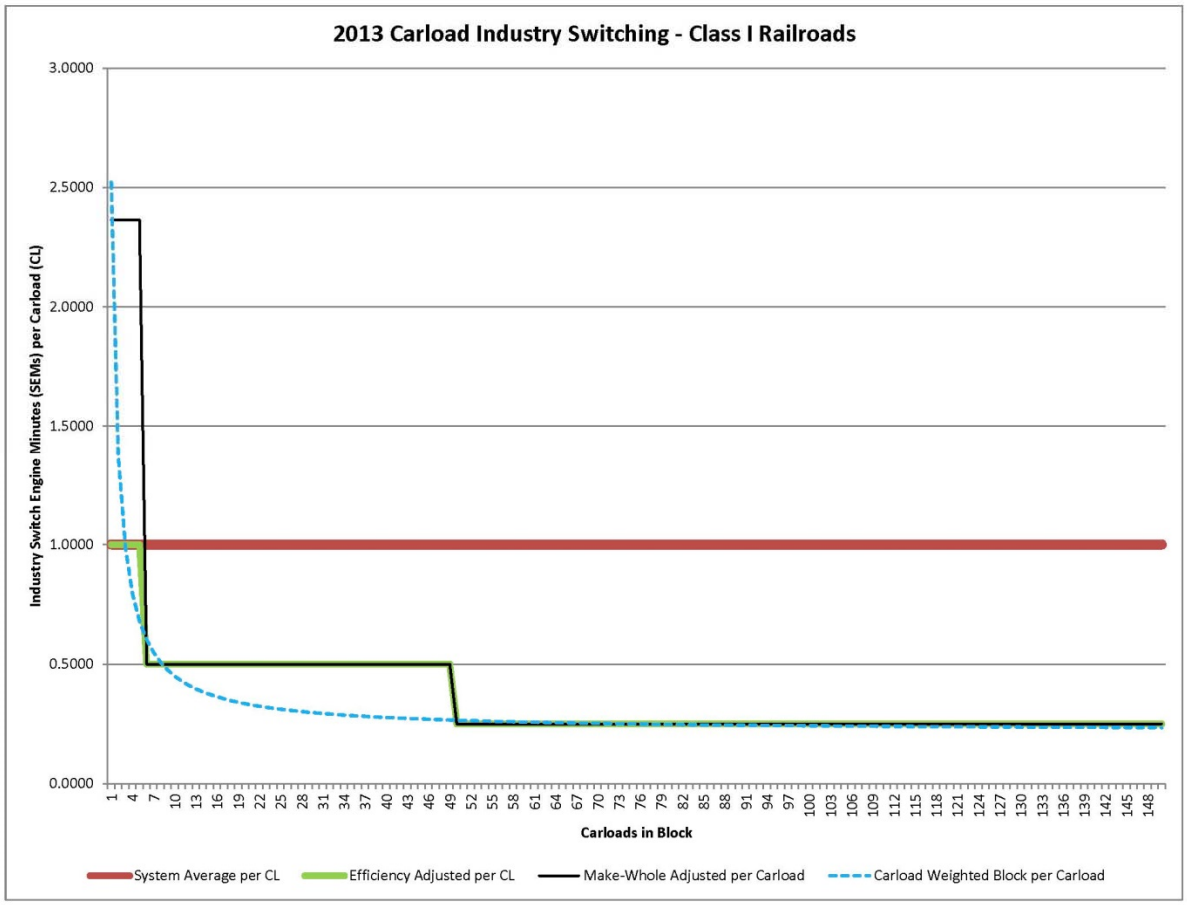
Conversion of Phase II SEMs per Carload to SEMs per CWB

In order to determine the SEMs for a shipment under the CWB Adjustment, the CWB Ratio is used to convert current Phase II SEMs per carload to SEMs per-CWB. Formulaically, the calculation is represented as follows:

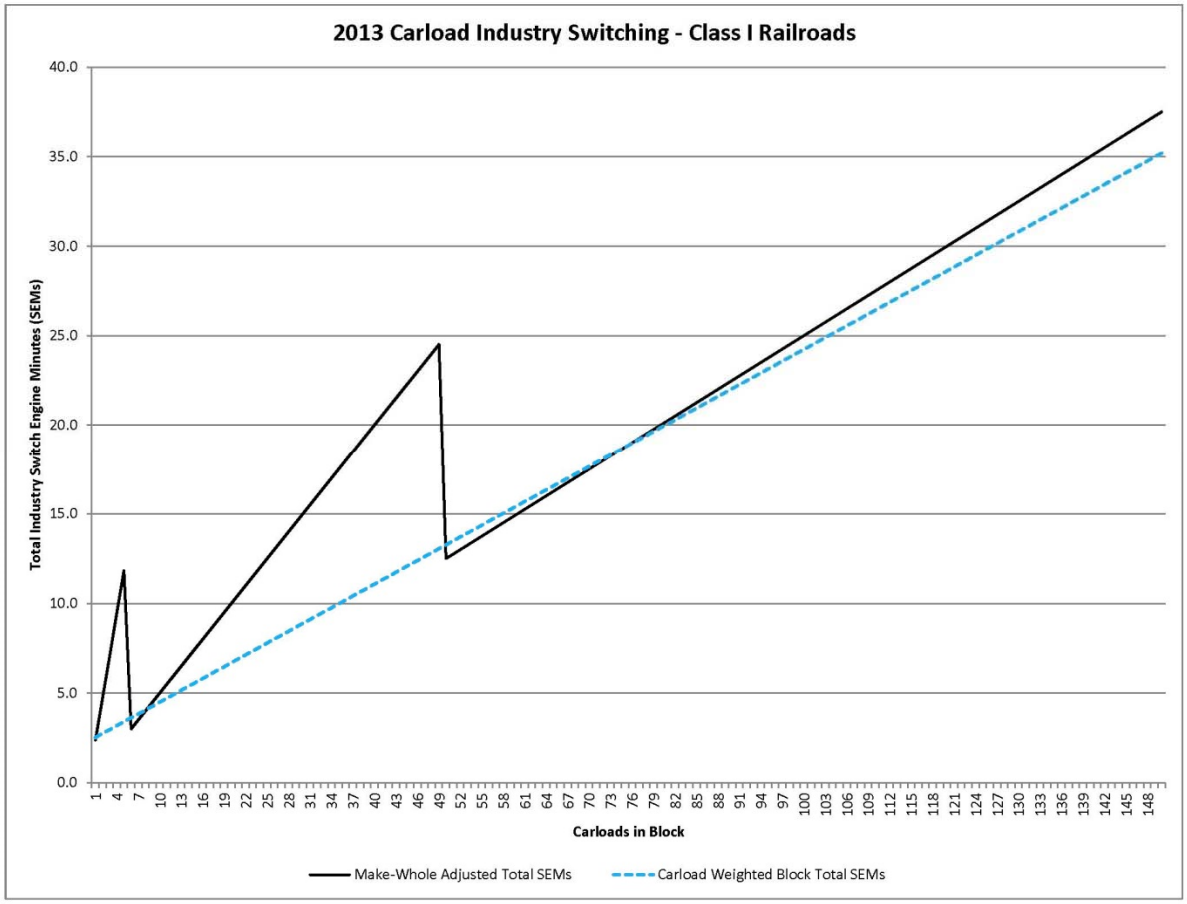
$$Phase\ III\ Adjusted\ SEMs = (Phase\ II\ System\ Average\ SEMs) * (CWB\ Ratio) * (CWBs)$$

Example: Carload Industry Switching

For industry switching, unit train movements currently receive an efficiency adjustment of 75%. Applying the CWB Adjustment requires solving for the percentage by which switching varies by carload. The chart below demonstrates the results for industry switching using 2013 data for all Class I railroads. In this example, the percentage by which switching varies by carload is 8.69% and the CWB Ratio is 2.52. The red line represents the system-average SEMs per carload as calculated in Phase II. The green line shows the efficiency adjustments and the black line shows the add-back of the efficiency adjustments, as applied by the make-whole adjustment in Phase III. The dashed blue line shows the CWB Adjustment (using the proposed unit train definition of 75 cars or more).

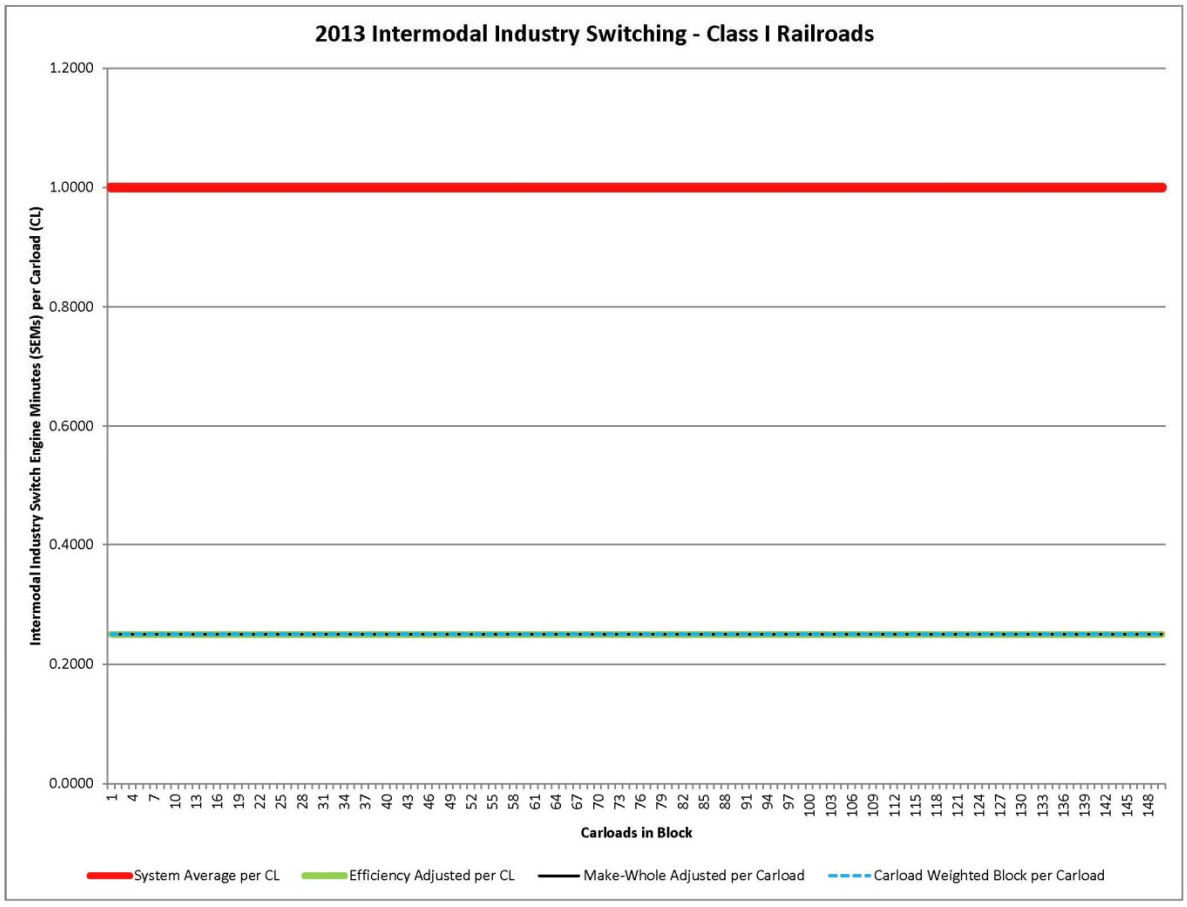


The step function of the current methodology and the elimination of the step function under the revised proposal are more easily shown in a chart of the total SEMs assigned to each block of varying sizes. The chart below contains the same information as the chart above, but depicts the total industry switching SEMs assigned to each block size.



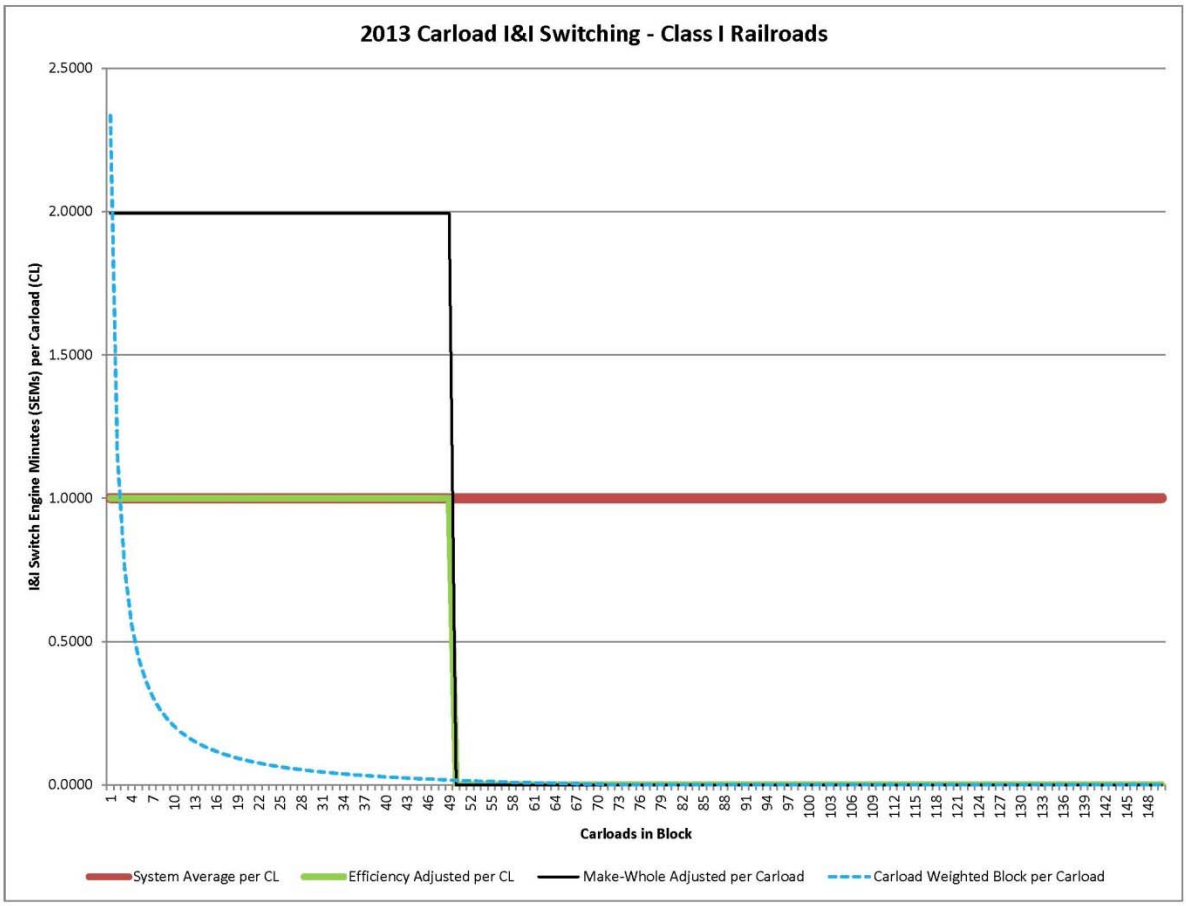
Example: Intermodal Industry Switching

All intermodal traffic receives a 75% efficiency adjustment for industry switching, without subsequent add-back. The chart below depicts results for industry switching of intermodal traffic using 2013 for all Class I railroads. In this example, the percentage by which switching varies by carload is 100% and the CWB Ratio is 0.25. The red line represents the system-average SEMs per carload as calculated in Phase II. The green line, black line, and dashed blue line are all equivalent, indicating that the CWB Adjustment matches the current make-whole adjustment for intermodal traffic.

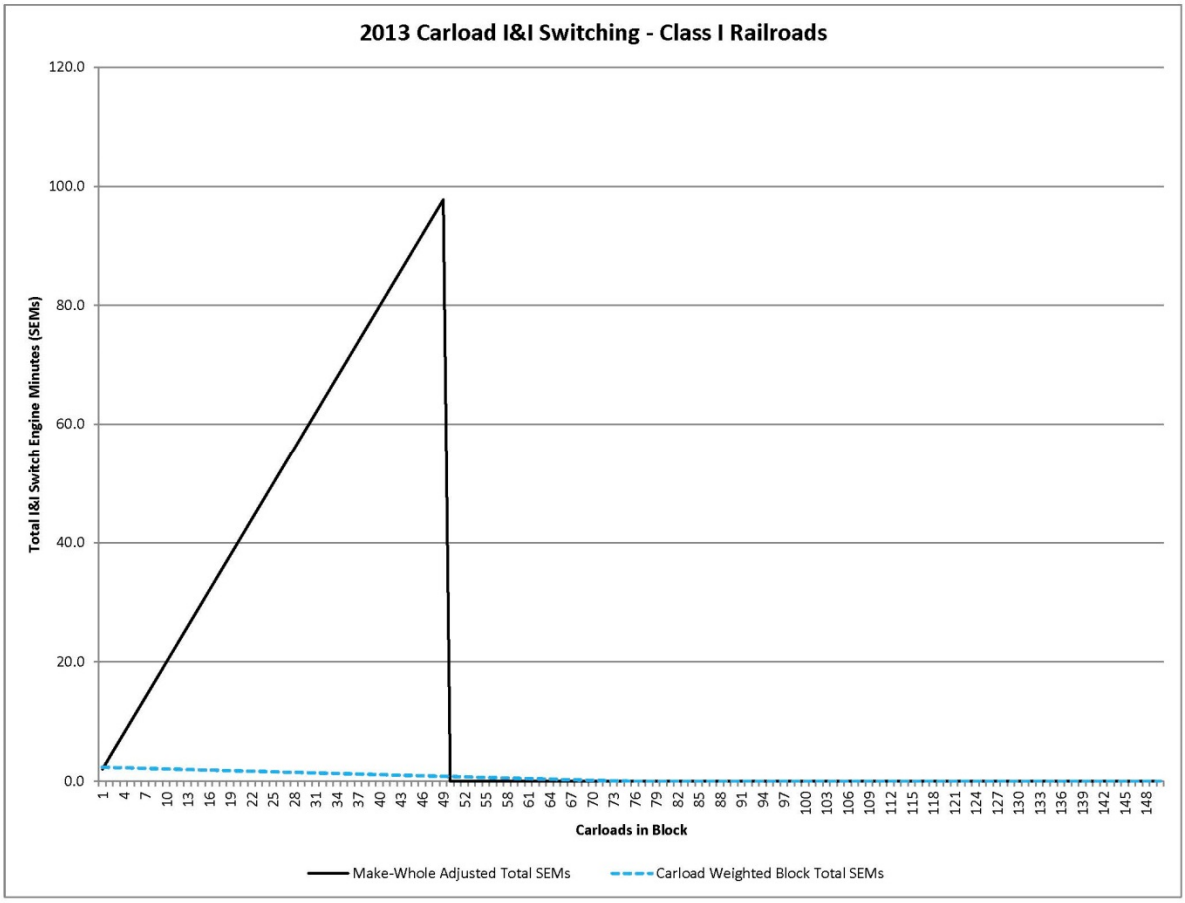


Example: Carload I&I Switching

For I&I switching, unit train movements currently receive an efficiency adjustment of 100%. The chart below demonstrates the results for I&I switching using 2013 data for all Class I railroads. In this example, the percentage by which switching varies by carload is -1.35% and the CWB Ratio is 2.34. The red line represents the system-average SEMs per carload as calculated in Phase II. The green line shows the efficiency adjustments and the black line shows the add-back of the efficiency adjustments, as applied by the make-whole adjustment in Phase III. The dashed blue line shows the CWB Adjustment (using the proposed unit train definition of 75 cars or more).



The step function of the current methodology and the elimination of the step function under the revised proposal are more easily shown in a chart of the total SEMs assigned to each block of varying sizes (i.e., the total I&I switching costs). The chart below contains the same information as the chart above, but depicts the total I&I switching SEMs assigned to each block size. The dashed blue line depicts the negative slope caused by solving for a 100% efficiency reduction for I&I switching for unit train (i.e., no I&I switching costs for unit trains).



APPENDIX C
Railroad-Owned Equipment

Current Railroad-Owned Equipment Efficiency Adjustments

		Efficiency Adjustments			
Equipment Event Category	**System-Average**	**Single-Car**	**Multi-Car**	**Unit Train**	**Intermodal**
CM(Y)/industry switch (L-E)	4	0%	50%	50%	50%
CM(Y)/interchange switch (L-E)	2.75	0%	0%	50%	50%
CM(Y)/I&I switch (L-E)	1	0%	0%	100%	0% or 100%*
CD(Y)/industry switch (L or E)	1	0%	50%	50%	50%
CD(Y)/interchange switch (L or E)	0.5	0%	0%	50%	50%
CD(Y)/I&I switch (L or E)	0.5	0%	0%	100%	0% or 100%*
CD(Y)-per loading & unloading for industry switch	2	0%	50%	50%	50%

*The efficiency adjustment factor for intermodal is set to 0% if the number of intermodal flatcars is less than six.

Examples of Proposed Changes to Phase II Inputs

1. Majority of Shipments for One Car Type Move By Unit Train

If a majority of shipments for one car type (greater than 50%) move by unit train, then the Board proposes to use the efficiency adjusted inputs for car-days and car-miles for all shipments with that car type in Phase II. For example, as shown below, in 2013, approximately 86% of plain gondola cars moved in unit train service.

Shipment Sizes by Car Type for Railroad-Owned Equipment (2013)

STB Car Type	Descriptions	Single-Car	Multi-Car	Unit Train*	Intermodal
39	***Plain Gondola Cars***	7%	7%	***86%***	0%

This is an excerpt from the "Shipment Sizes by Car Type for Railroad-Owned Equipment (2013)" table shown below in this Appendix.

Because the majority of shipments for Plain Gondola Cars moved by unit train, we would apply the efficiency adjustment for unit train service to all shipments of that car type. Thus, for car-mile (yard) industry switching, for example, we would apply an efficiency factor reduction of 50% for Plain Gondola Cars and use the efficiency adjusted value of two car-miles per industry switch in yard switching in Phase II for Plain Gondola Cars.

Current Railroad-Owned Equipment Efficiency Adjustments

Equipment Event Category	System-Average	Single-Car	Multi-Car	Unit Train	Intermodal
CM(Y)/industry switch (L-E)	***4***	0%	50%	***50%***	50%

This is an excerpt from the "Current Railroad-Owned Equipment Efficiency Adjustments" table shown in this Appendix.

2. Majority of Shipments for One Car Type Move By Single-Car

Where the predominant shipment size for a car type is single-car, the Board proposes to use the unadjusted inputs for car-days and car-miles for all shipments with that car type in Phase II. For example, as shown below, in 2013, approximately 99% of Plain Box Cars (50' and longer) moved as single-car service.

Shipment Sizes by Car Type for Railroad-Owned Equipment (2013)

STB Car Type	Descriptions	Single-Car	Multi-Car	Unit Train*	Intermodal
37	***Plain Box Cars 50' and Longer***	***99%***	1%	0%	0%

This is an excerpt from the "Shipment Sizes by Car Type for Railroad-Owned Equipment (2013)" table shown below in this Appendix.

Because the majority of shipments for Plain Box Cars (50' and longer) moved as single-cars, we would apply no efficiency adjustment for single-car service to all shipments of that car type. Thus, for car-mile (yard) industry switching, for example, no efficiency adjustment would apply because the efficiency adjustment is 0% for single-car. We accordingly would use the system-average value of four car-miles per industry switch in yard switching in Phase II for Plain Box Cars (50' and longer).

Current Railroad-Owned Equipment Efficiency Adjustments

Equipment Event Category	System-Average	Single-Car	Multi-Car	Unit Train	Intermodal
CM(Y)/industry switch (L or E)	***4***	***0%***	50%	50%	50%

This is an excerpt from the "Current Railroad-Owned Equipment Efficiency Adjustments" table shown in this Appendix.

3. No Majority of Shipments Move by a Particular Shipment Size

Where there is no majority of shipments moving by particular shipment size, the Board proposes to apply the efficiency adjustments depending on whether the particular adjustment reduces costs for multi-car shipments or not. For example, as shown below, in 2013, there was no majority shipment size for Covered Hopper Cars.

Shipment Sizes by Car Type for Railroad-Owned Equipment (2013)

STB Car Type	Descriptions	Single-Car	Multi-Car	Unit Train*	Intermodal
41	***Covered Hopper Cars***	***33%***	***26%***	***41%***	***0%***

This is an excerpt from the "Shipment Sizes by Car Type for Railroad-Owned Equipment (2013)" table shown below in this Appendix.

Because car-mile (yard) industry switching reduces costs by 50% for multi-car traffic, we would apply that efficiency adjustment to Covered Hopper Cars and use a value of two car-miles per industry switch in Phase II for Covered Hopper Cars. However, because car-mile (yard) interchange switching does not apply an adjustment for multi-car traffic, we would apply no adjustment to Covered Hopper Cars and use the unadjusted value of 2.75 car-miles per industry switch in yard switching in Phase II for Covered Hopper Cars.

Current Railroad-Owned Equipment Efficiency Adjustments

Equipment Event Category	System-Average	Single-Car	Multi-Car	Unit Train	Intermodal
CM(Y)/industry switch (L or E)	***4***	0%	***50%***	50%	50%
CM(Y)/interchange switch (L or E)	***2.75***	0%	***0%***	50%	50%

This is an excerpt from the "Current Railroad-Owned Equipment Efficiency Adjustments" table shown in this Appendix.

For tables showing shipment sizes by car type for privately-owned equipment, see Appendix E (2013 data) and workpapers "Equipment Counts_2012.xlsx" and "Equipment Counts_2013.xlsx" (2012 and 2013 data), containing carloads and car-miles by railroad, car type, ownership and shipment size.

Shipment Sizes by Car Type for Railroad-Owned Equipment (2013)

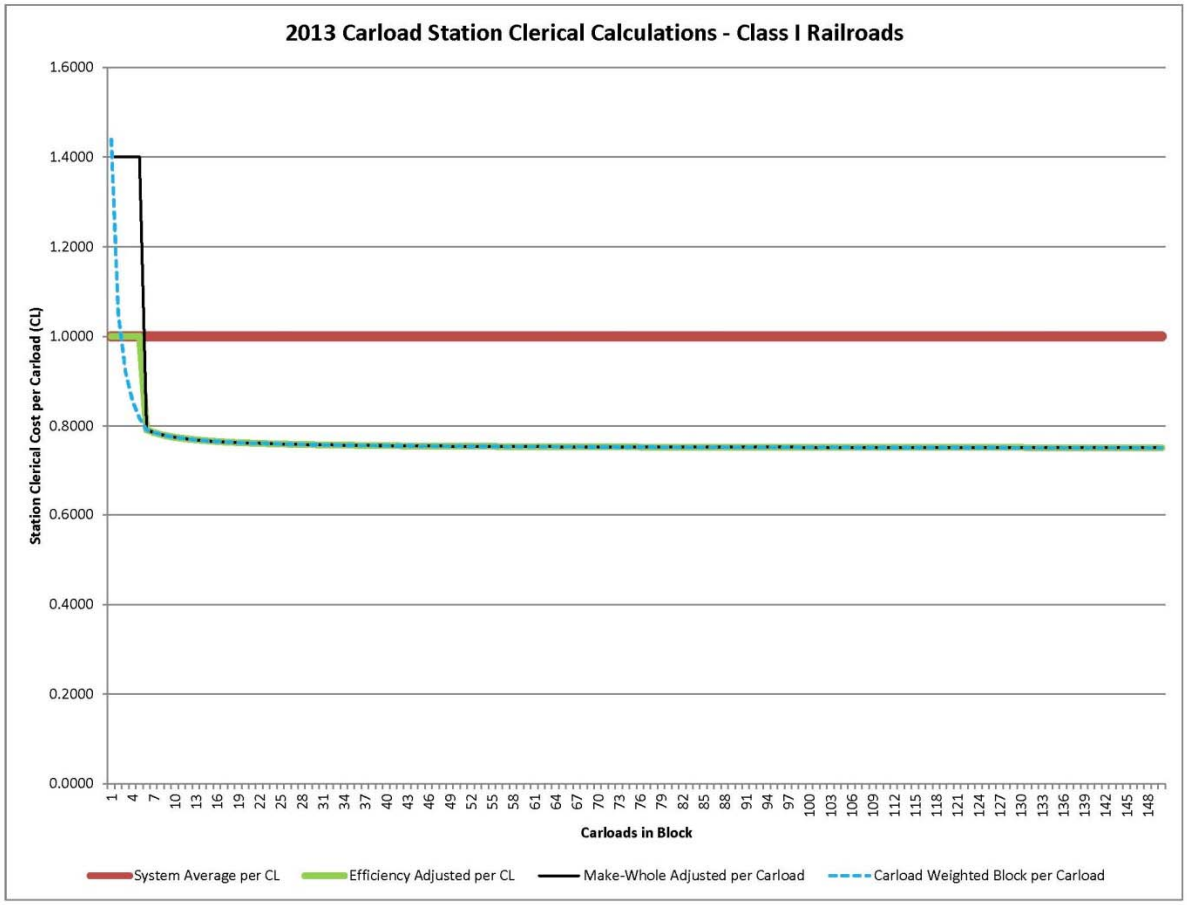
STB Car Type	Descriptions	Single-Car	Multi-Car	Unit Train*	Intermodal
36	Plain Box Cars 40'**	0%	0%	0%	0%
37	Plain Box Cars 50' and Longer	99%	1%	0%	0%
38	Equipped Box Cars	100%	0%	0%	0%
39	Plain Gondola Cars	7%	7%	86%	0%
40	Equipped Gondola Cars	83%	14%	3%	0%
41	Covered Hopper Cars	33%	26%	41%	0%
42	Open-Top Hopper Cars-General Service	4%	30%	65%	0%
43	Open-Top Hopper Cars-Special Service	2%	20%	77%	0%
44	Refrigerator Cars-Mechanical	86%	14%	0%	0%
45	Refrigerator Cars-Non-Mechanical	100%	0%	0%	0%
46	Flat Cars TOFC/COFC	0%	0%	0%	100%
47	Flat Cars-Multi-Level	100%	0%	0%	0%
48	Flat Cars-General Service	100%	0%	0%	0%
49	Flat Cars-Other	93%	2%	4%	0%
50	Tank Cars-Under 22,000 Gallons	100%	0%	0%	0%
51	Tank Cars-22,000 Gallons and Over	0%	0%	0%	0%
52	All Other Freight Cars	95%	5%	0%	0%

*Applying the definition of unit train proposed in this Supplemental NPR of 75 cars or more.
**There are no movements of 40' plain box cars. URCS Phase II substitutes the 50' and longer plain box car values for 40' plain box cars.

APPENDIX D
Station Clerical

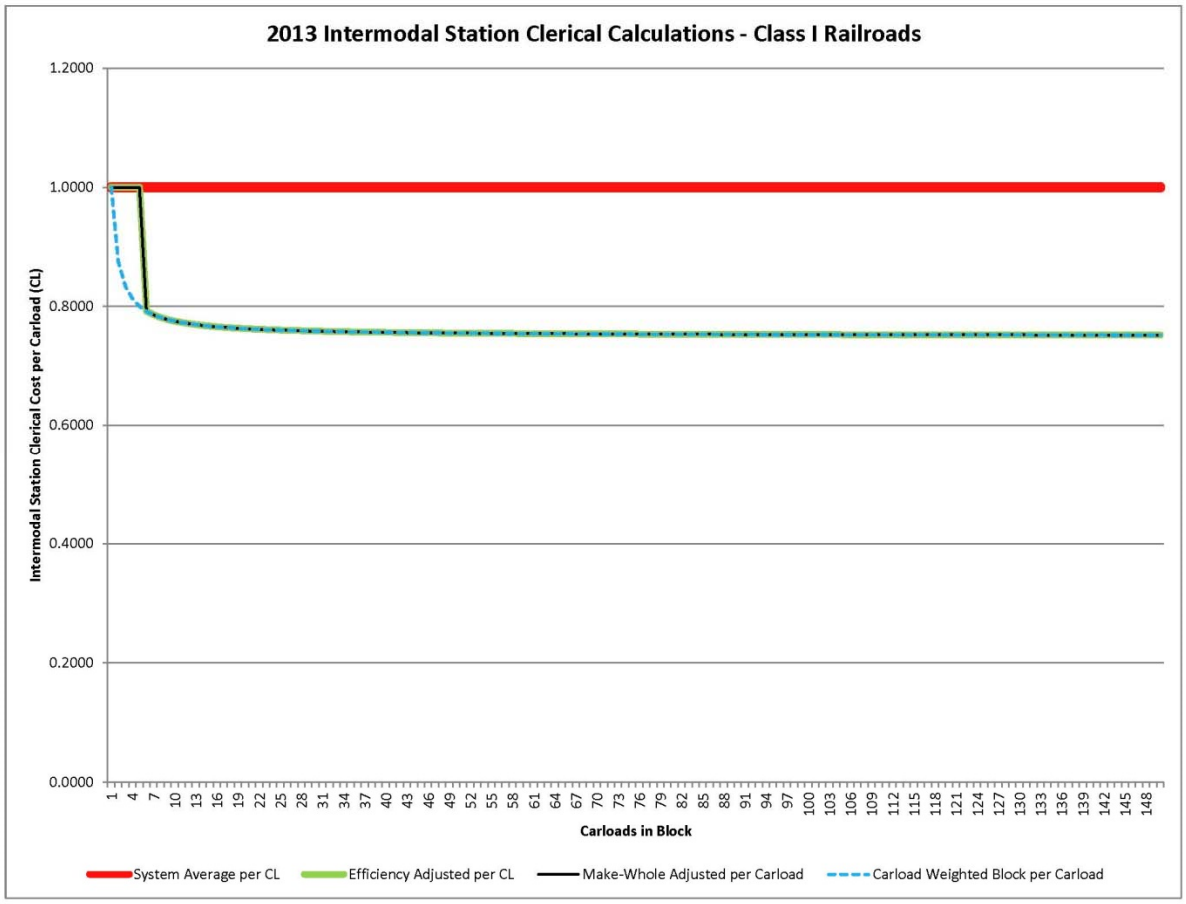
Example: Carload Station Clerical

Using data for Class I railroads from 2013, the chart below depicts sample results for the application of the CWB Adjustment to station clerical for single-car traffic. For multi-car and unit train shipments, the chart below shows that the CWB Adjustment matches the current make-whole adjustment.



Example: Intermodal Station Clerical

Using data for Class I railroads from 2013, the chart below depicts sample results for the application of the CWB Adjustment to station clerical for intermodal traffic.



APPENDIX E
Car-Miles (E/L Ratio)

E/L Ratios for Class I Railroads (2013)

Equipment Type	CN	CSXT	NSR	BNSF	CP	KCS	UP
Privately-Owned, Plain Gondola Cars	2.0773	1.8681	2.0508	2.0116	1.9941	1.9334	1.9914
Privately-Owned, Open-Top Hopper Cars (General Service)	2.0301	1.8519	2.0226	2.0046	1.9947	2.0213	1.9725
Privately-Owned, Open-Top Hopper Cars (Special Service)	2.0328	1.8998	2.0317	2.0191	2.0459	1.9398	1.9852
Railroad-Owned, Plain Gondola Cars	2.0584	1.9844	1.9409	1.8549	1.8316	2.0597	1.9973
Railroad-Owned, Open-Top Hopper Cars (General Service)	1.9965	2.0191	2.0954	2.3389	2.0665	1.9868	2.0384
Railroad-Owned, Open-Top Hopper Cars (Special Service)	2.0229	2.0553	2.1020	2.1288	2.0000	1.9980	1.9248

For tables showing shipment sizes by car type for railroad-owned equipment, see Appendix C (2013 data) and workpapers "Equipment Counts_2012.xlsx" and "Equipment Counts_2013.xlsx" (2012 and 2013 data), containing carloads and car-miles by railroad, car type, ownership and shipment size.

Shipment Sizes by Car Type for Privately-Owned Equipment (2013)

STB Car Type	Description	Single-Car	Multi-Car	Unit Train*	Intermodal
36	Plain Box Cars 40'**	0%	0%	0%	0%
37	Plain Box Cars 50' and Longer	100%	0%	0%	0%
38	Equipped Box Cars	100%	0%	0%	0%
39	Plain Gondola Cars	5%	2%	93%	0%
40	Equipped Gondola Cars	54%	24%	22%	0%
41	Covered Hopper Cars	72%	18%	10%	0%
42	Open-Top Hopper Cars-General Service	4%	37%	59%	0%
43	Open-Top Hopper Cars-Special Service	1%	13%	86%	0%
44	Refrigerator Cars-Mechanical	100%	0%	0%	0%
45	Refrigerator Cars-Non-Mechanical	100%	0%	0%	0%
46	Flat Cars TOFC/COFC	0%	0%	0%	100%
47	Flat Cars-Multi-Level	100%	0%	0%	0%
48	Flat Cars-General Service	38%	62%	0%	0%
49	Flat Cars-Other	85%	14%	0%	0%
50	Tank Cars-Under 22,000 Gallons	92%	6%	1%	0%
51	Tank Cars-22,000 Gallons and Over	61%	9%	30%	0%
52	All Other Freight Cars	76%	24%	0%	0%

*Applying the definition of unit train proposed in this Supplemental NPR of 75 cars or more.
**There are no movements of 40' plain box cars. URCS Phase II substitutes the 50' and longer plain box car values for 40' plain box cars.

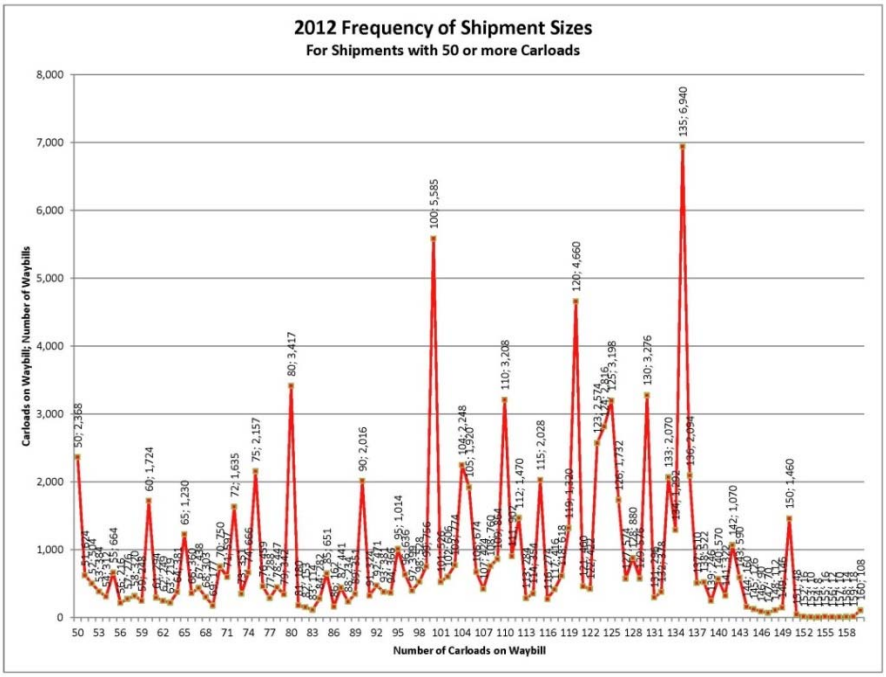
APPENDIX F
Definition of Unit Train

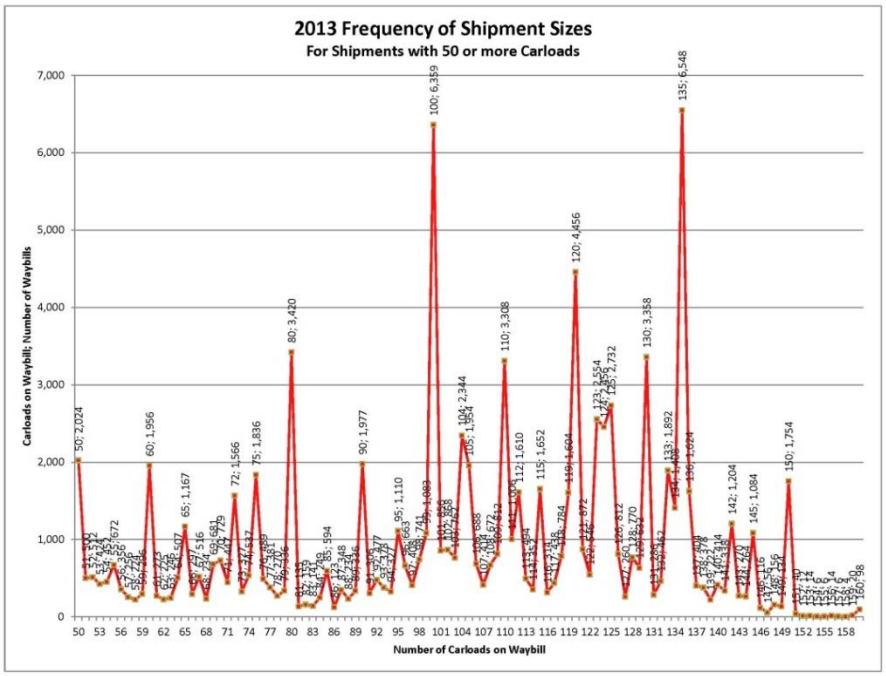
Weighted Average Thru Train & Unit Train Lengths (R-1 Data from 2012)

Railroad	Thru Train & Unit Train Car-Miles	Thru Train & Unit Train Train Miles	Average Cars
BNSF	11,266,556	156,900	71.8
CN	1,177,824	11,557	101.9
CP	815,920	10,621	76.8
CSXT	4,753,387	72,236	65.8
KCS	607,723	7,208	84.3
NSR	3,999,229	63,411	63.1
UP	12,869,186	135,756	94.8
Total	**35,489,825**	**457,689**	**77.5**

Weighted Average Thru Train & Unit Train Lengths (R-1 Data from 2013)

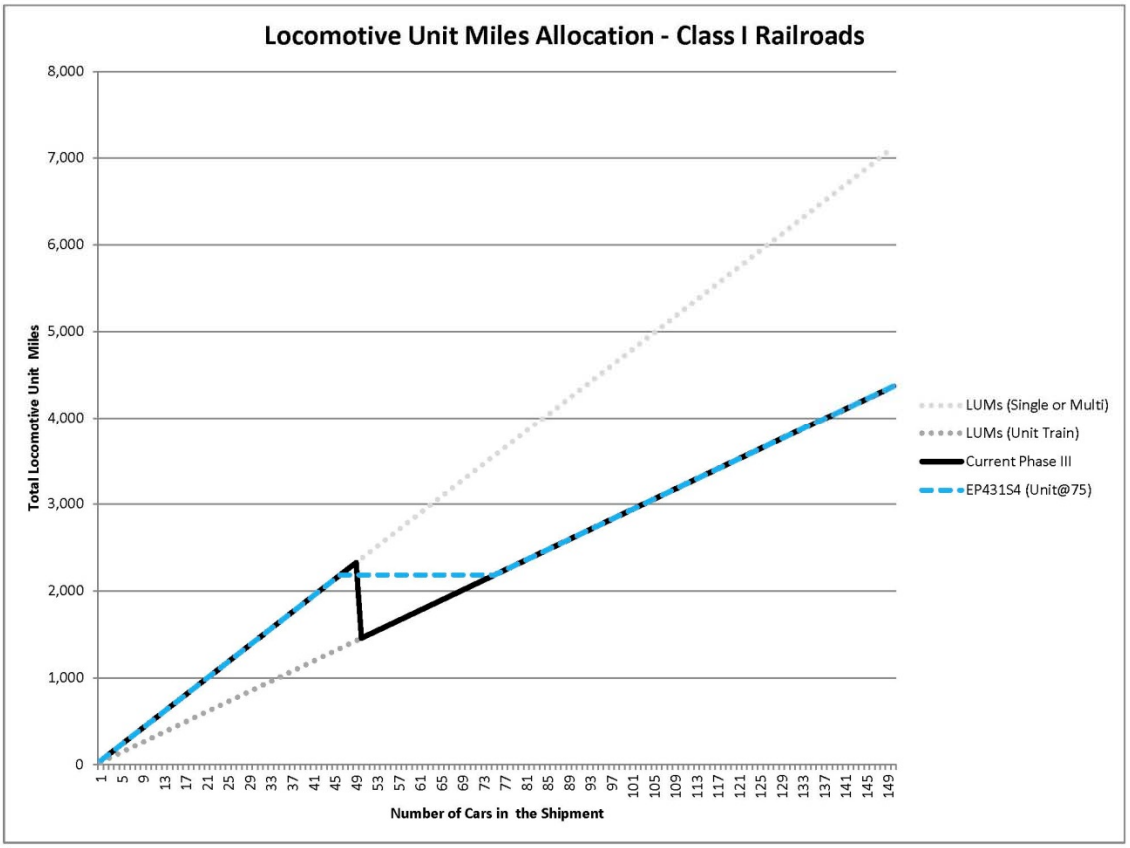
Railroad	Thru Train & Unit Train Car-Miles	Thru Train & Unit Train Train Miles	Average Cars
BNSF	11,650,580	161,646	72.1
CN	1,251,686	12,171	102.8
CP	913,318	10,576	86.4
CSXT	4,807,958	72,667	66.2
KCS	626,998	7,393	84.8
NSR	4,165,209	63,478	65.6
UP	10,790,669	134,839	80.0
Total	**34,206,418**	**462,770**	**73.9**


2012 Frequency of Shipment Sizes
For Shipments with 50 or more Carloads
Carloads on Waybill; Number of Waybills
Number of Carloads on Waybill
50; 2,388
60; 1,724
65; 1,230
72; 1,635
75; 2,157
80; 3,417
90; 2,016
95; 1,014
100; 5,585
104; 2,248
105; 1,920
110; 3,208
112; 1,470
115; 2,028
120; 4,660
125; 3,198
130; 3,276
133; 2,070
135; 6,940
142; 1,070
150; 1,460

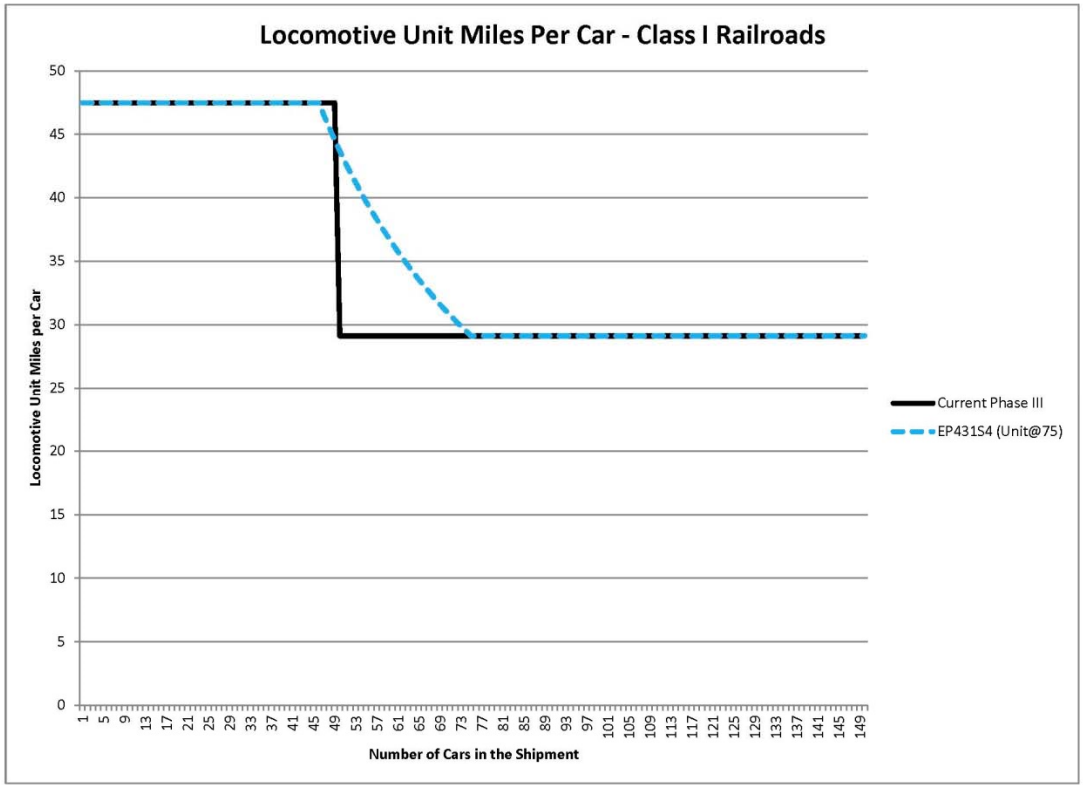

2013 Frequency of Shipment Sizes
For Shipments with 50 or more Carloads
Carloads on Waybill; Number of Waybills
Number of Carloads on Waybill
50; 2,024
60; 1,956
65; 1,167
72; 1,566
75; 1,836
80; 3,420
90; 1,977
95; 1,110
100; 6,359
104; 2,344
105; 1,954
110; 3,308
112; 1,610
115; 1,652
120; 4,456
125; 2,732
130; 3,358
133; 1,892
135; 6,548
142; 1,204
145; 1,084
150; 1,754

APPENDIX G
Locomotive Unit-Miles

The chart below depicts the example allocation, described above, of LUMs on a per-shipment basis using 2013 data for all Class I railroads. It shows that URCS allocates higher LUMs to a multi-car shipment than to a unit train shipment. The black line shows the step function created by the current allocation of LUMs between 49 car shipments and 50 car shipments. The dashed blue line depicts our current proposal to cap the LUMs allocated to multi-car shipments so that they are less than or equal to the LUMs allocated to unit train shipments. The grey lines show the LUMs allocated to single-car or multi-car shipments (top grey line) and unit train shipments (bottom grey line) without capping the LUMs allocated to multi-car shipments.

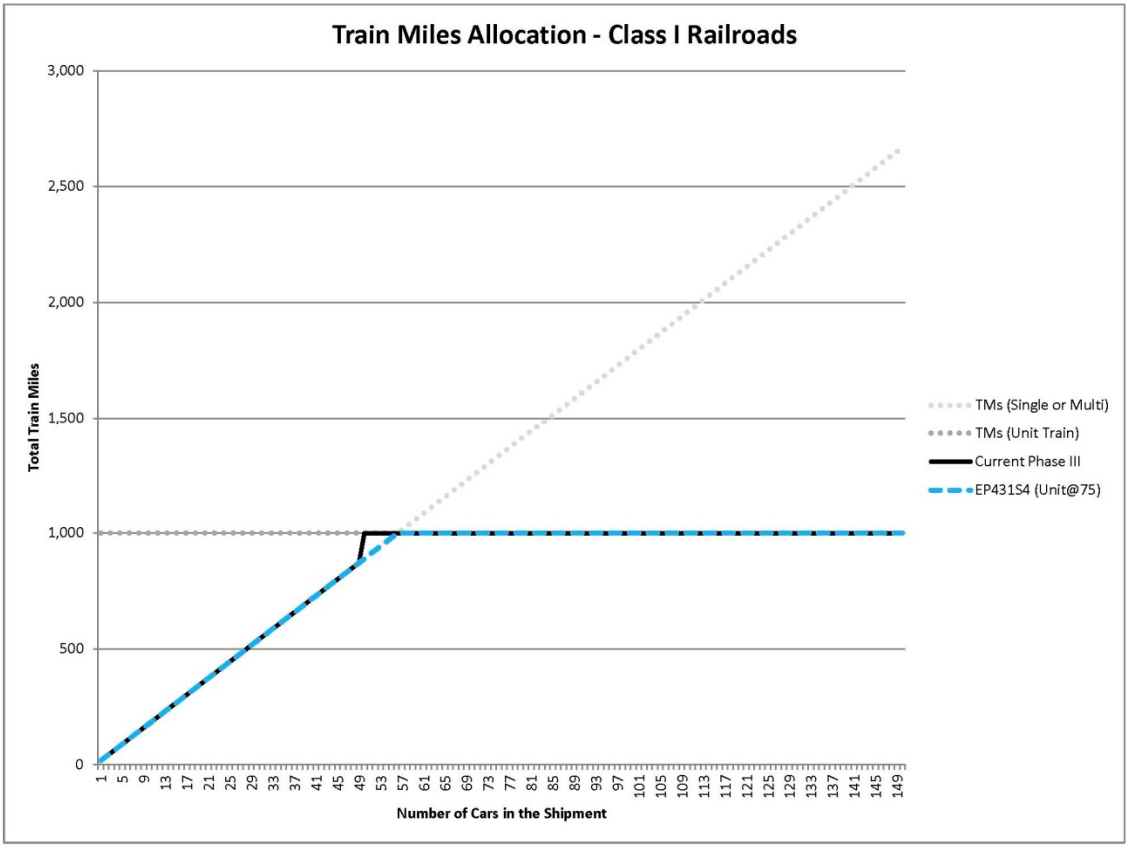


The chart below depicts an example allocation of LUMs on a per-car basis using 2013 data for all Class I railroads. In the example depicted below, the shipment gross tons per car is assumed to be 90, and the shipment miles is assumed to be 1,000. The black line depicts the current allocation of LUMs. The dashed blue line shows our proposal to cap LUMs allocated to multi-car shipments to be less than or equal to LUMs allocated to unit train shipments.



APPENDIX H
Train Miles

The chart below depicts the example allocation, described above, of total train miles per shipment using 2013 data for all Class I railroads. The black line shows that a positive step function is created by the current allocation of train miles between 49 car shipments and 50 car shipments. The dashed blue line depicts our proposal to cap the train miles allocated to multi-car shipments so that they are less than or equal to the LUMs allocated to unit train shipments. The grey lines show the train miles allocated to single-car or multi-car (top grey line) and unit train (horizontal grey line) without capping the train miles allocated to multi-car shipments.



The chart below depicts an example allocation of train miles on a per-car basis using 2013 data for all Class I railroads. In the example depicted below, the shipment gross tons per car is assumed to be 90, and the shipment miles is assumed to be 1,000. The black line depicts the current allocation of train miles per car. The dashed blue line shows, on a per-car basis, our proposal to cap train miles allocated to multi-car shipments to be less than or equal to train miles allocated to unit train shipments.