A Message from the JTRF General Editor

Effective with this issue, the Eno Transportation Foundation, Inc., will cease publication of *Transportation Quarterly* (TQ) as an academic journal. Of course, since the *Journal of the Transportation Research Forum* (JTRF) is jointly published with *TQ*, Eno will cease to publish *JTRF* as well. However, *JTRF* is NOT going out of business but will, rather, continue to publish up-to-date, high quality, analytical articles, as has been the case in the past. Beginning in 2004, *JTRF* will publish twice a year (tentatively in the spring and fall). I will remain as General Editor and the editorial policy will be the same as it has been for the last four years during joint publication with *TQ*. *JTRF* seeks original manuscripts dealing with any aspect of transportation. Articles must be analytical in nature and can be theoretical, empirical, or both. Industry issue papers may be entirely descriptive, addressing current issues that affect or will affect transportation industries—e.g., air, rail, truck, and water. (See the last two pages of this issue for more information about *JTRF* manuscript contributors.) The peer review process will continue to be 90 days. Authors who have published articles in the past in *TQ* are welcome to submit their future work to *JTRF*.

It is expected that *JTRF* will continue to publish the same number of articles annually as has been the case during the past four-year association with the Eno Transportation Foundation. A special thanks goes to Sandra Selva of Eno whose knowledge of the English language, infinite patience, and good humor made my job much easier.

This issue of the *Journal of the Transportation Research Forum* contains the usual wide variety of transport topics that has characterized *JTRF*. Topical areas include short line rail transport, environmental and energy impacts of dam breaching on the Columbia-Snake River system, highway design, and assessing business and financial risk in the airline industry.

In "Impact of Short Line Railroad Abandonment on Wheat Transportation and Handling Costs: A Kansas Case Study," Michael Babcock, James Bunch, James Sanderson, and Jay Witt measure the change in transportation and handling cost of Kansas wheat, resulting from simulated abandonment of short line railroads. The authors point out that in the Great Plains states and the Canadian Prairie provinces, the amount of grain shipped by truck has increased and the amount of short line railroad grain traffic has correspondingly decreased. Babcock et al. note that grain is the principal commodity market for many short lines in this region, so as more grain has been shipped by truck, short lines have lost market share in their most important market, threatening the long run viability of these railroads. The authors state that short line abandonment could have several negative effects on rural communities, so it is important to measure the quantifiable aspects of abandonment. The authors employ a network model to route wheat through the Kansas wheat logistics system to achieve minimum transportation and handling costs. The analysis is performed with and without study area short lines in the wheat logistics system. The difference in the two scenarios is the impact of short line abandonment on Kansas wheat transportation and handling costs. Babcock et al. conclude that total transport cost for the no-abandonment scenario was $126.6 million, and $124.9 million for the simulated abandonment scenario. Total wheat handling costs increased $22.4 million as a result of abandonment. Thus, total transport and handling cost was $20.7 million higher in the simulated short line abandonment scenario.

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In "Impact of Short Line Railroad Abandonment on Highway Damage Costs: A Kansas Case Study," Michael Babcock, James Bunch, James Sanderson, and Jay Witt measure the change in Kansas state highway damage costs, resulting from assumed abandonment of short line railroads. As the authors point out above, short line abandonment could have several negative effects on rural communities, so it is important to measure the quantifiable impacts of abandonment. Using Arc View Geographic Information System (GIS) software and a truck routing algorithm, the authors develop a network model to route wheat through the Kansas wheat logistics system to minimize transportation costs. Babcock et al. performed this analysis with and without short line railroads in the wheat logistics system. The authors employed a pavement model developed by Denver Tolliver to calculate the additional damage costs for state roads attributable to the increased grain trucking following simulated short line abandonment. The authors conclude that total annual road damage costs resulting from simulated abandonment were $57.8 million. The average damage cost per truck mile was $7.15, and the average road damage cost per rail mile abandoned was $32,811. Incremental state fuel tax revenue generated by simulated abandonment was only 0.5% of annual road damage cost.

In "Alternative Evaluations of a River Drawdown: Reassessing the Environmental Paradox," Trent Ball and Ken Casavant measure the effect on energy consumption and emissions production as a result of breaching dams on the Lower Snake River. The authors evaluate the impacts using both national and regional energy efficiency coefficients. Ball and Casavant note that proponents of dam breaching argue that this will increase salmon migration and survival rates in the Columbia-Snake River system. This paper is an update of a previous paper published in JTRF that used national energy coefficients (the only data available at the time). After citing some hypotheses on why the results might be more accurate using regional coefficients, the authors estimate the impact of the Snake River drawdown (due to dam breaching) on transportation energy and emissions using regional coefficients and compare the results to those of the previous study. Energy consumption and emissions depend on routing and modal choices so the authors employ a GIS-GAMS model developed by Eric Jessup to determine the least costly wheat and barley transportation routes and mode choices for barge and no-barge (due to dam breaching) scenarios. The authors conclude that for wheat, a Snake River drawdown would reduce energy consumption by 2.16% using regional coefficients compared to a 0.61% decline with national coefficients. Emissions production declines by 2.08% using regional coefficients compared to a 1.29% increase with national energy coefficients. However, when wheat and barley transportation are combined, energy consumption increases 1.61% under the breaching scenario. Transportation emissions were unchanged due to a decrease of emissions for wheat and an offsetting increase of emissions for barley. The authors conclude that the use of regional coefficients does not change the conclusion of the previous paper; that is, a drawdown of the Snake River for salmon restoration would not have a significant negative energy consumption or environmental emissions impact.

In "Evaluation of Milled Centerline Rumble Strip Patterns," Margaret Rys, Eugene Russell, and Troy Brin determine the optimal characteristics of centerline rumble strips for installation on Kansas highways. Centerline rumble strips are placed in the center of the road to alert drivers that they have crossed over into the path of oncoming traffic. The authors point out that several states and Canadian provinces have begun experimenting with centerline rumble strips but there is currently no standard for the characteristics of the rumble strips being installed. Rys et al. evaluate 12 different patterns and dimensions for milled centerline rumble strips based on vehicle interior noise level, steering wheel vibration, and exterior noise level. Field tests were conducted using seven vehicles which represent a wide spectrum of the

vehicles using Kansas highways. Interior noise level testing was conducted by measuring the noise levels generated by the rumble strips as the vehicle passed over each of the 12 rumble strip patterns. The authors found that patterns with higher densities of rumble strip indentations produce higher average decibel levels. Steering wheel vibration testing was conducted by measuring the vibration levels in the steering wheel generated by the rumble strips as the vehicles passed over each test section at 60 mph. The authors found that the highest vibration was produced by the alternating 12- and 24-inch on center pattern. Based on the noise and vibration tests, the authors recommended two of the 12 patterns for further testing in an actual Kansas highway setting.

In "Business, Financial, and Total Risk in Air Transport: A Comparison to Other Industry Groups Prior to September 11, 2001," Richard Gritta and Garland Chow assess the risk and returns of the US airline industry and compare these factors across a range of industry groups for the years 1996-2000. The authors define business risk as the instability of operating profits and operating returns on assets, while financial risk is the added instability of returns to stockholders resulting from the use of long-term debt to finance the firm's capital structure. Total or combined risk is the total variability in returns to stockholders. Gritta and Chow compared these measures of risks for the airline and 25 other industry groups. The authors indicate that there is a direct relationship between the operating ratio (ratio of operating expense to operating revenue) and business risk. The authors found that the airlines had the sixth highest operating ratio of the 26-industry sample. The authors point out that there is a direct relationship between financial risk and the debt/equity ratio. Gritta and Chow found that the airlines had the fourth highest debt/equity ratio among the 26 industries. The high business and financial risk of the airlines is demonstrated by the authors to result in high total risk as well. The authors conclude that the high level of total risk has led to airline returns that are both below the average and more volatile than other industries.

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